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Brazilian Politics and Rubber.

IN the *Fortnightly Review* for January there is an article on "Politics and Finance in Brazil," couched in those pessimistic terms which find so much favor among a certain class of English writers on the great South American republic. The author regards the equatorial part of Brazil as "merely decorative," and attacks Rio Janeiro as "a breeding-ground of pestilence." The future of the country in general is painted in the most somber colors, and the Republic is seen "looming large as a political and financial wreck about to fall to pieces." The familiarity of this calamity-writer with the resources of Brazil may be judged by the fact that the word "rubber" scarcely appears once in his paper of a dozen pages. Naturally, therefore, it is not surprising that he should regard the rubber-producing States as not worthy of being considered a factor in the welfare of the Republic.

Like some intelligent Americans, whose only measure of the greatness and the progress of our own United States is the degree of the fluctuations in "wildcat" stocks in Wall street, most English writers on Brazilian affairs permit their opinions to be determined by the rise and fall of speculative affairs in the capital city of Brazil, many of which have no bearing upon the real industrial progress of that country. It is true that the political situation of to-day in Brazil may give little promise of stability; that its currency must undergo a marked change from present conditions, and that many concerns organized with a great show of capital on paper are ready at the slightest sign of trouble to collapse. But none of the changes here hinted at can affect the rubber-producing industry very seriously, or for a considerable period of time. Just as the oyster-fisheries of the United States will continue to be operated without regard to the views of the administration at Washington on the currency and tariff questions, the rubber forests on the Amazon will continue to be tapped by the world of rubber-buyers so long as rubber shoes are needed and new forms of bicycle-tires are invented, whether Brazil should remain a republic or revert to a monarchy.

Naturally those engaged in the rubber trade will always be interested in watching the trend of political movements in the greatest rubber-producing country in the world, but how the results of these movements can ever prevent Americans, Englishmen, and Germans from buying rubber so long as they have the money to pay for it, we cannot see.

Colonel Pope, Good Roads, and Bicycles.

THE letter from Colonel Albert A. Pope, printed on another page, points out the mistake into which THE INDIA RUBBER WORLD fell last month, in supposing that his efforts in the cause of "good roads" had for their ultimate object a system of governmental oversight of the highways. We are glad to place Colonel Pope upon record as believing that individual enterprise and private means are better than political management for securing the betterment of country roads. It appears that the petition to Congress which he has circulated so widely is meant only

to secure means for teaching the people the value of good roads and the best principles of road-construction. For the present we shall consider the question as turning not so much upon the value of the road-exhibit and the literature of road-making for which Congress is asked to pay, as upon the propriety of Congress undertaking the work.

Certainly if the farmers of every community were to do what is in their power in the way of repairing and improving the local roads, the result in most cases would be an increase in the profits of their business and in the value of their lands. The aggregate of the annual increase of the wealth of the country from such a source probably would exceed the most liberal estimates yet made. But the same thing is true of a hundred other features of modern life. If more farmers were careful to protect their implements from rust, or their live stock from cold, there would be more comfortable bank-accounts in the country towns. But shall Congress therefore undertake to teach the farmers to take in their harvesting-machines when it rains? It would be but a short step to asking the Government to show housekeepers, in city and country, the economy of protecting woolens against moths.

The truth is, there is no absolute standard of good roads. In many farming sections the highways meet every reasonable requirement, but there are other sections where the lands are too poor, or the population too sparse, to justify the building of equally good roads. As for those localities whose existing roads might profitably be improved, if the farmers and villagers are willing to suffer from the neglect of the roads, it is simply their own affair. When the people anywhere want better roads than they now have, they are very apt to get what they want, either by improving the bad roads, or by moving to another locality. One of the most certain ways of creating a desire for good roads,—as we have before contended,—is by introducing the healthful and pleasing practice of cycling, which can be made popular in any county, but which cannot be pursued over bad roads. Here is Colonel Pope's opportunity; he is at the head of a large bicycle trade, and it is safe to say that his influence in behalf of good roads has already been more valuable than the proposed Government Bureau could ever be.

Profits and the Census Reports.

WHILE manufacturers themselves are often unable to estimate their profits, it need not be surprising if people not in the business should have widely mistaken ideas regarding the money to be made in manufacturing. Much misinformation under this head was based upon the Tenth Census, owing to the assumption on the part of many writers for the public that the Census purported to set forth all the items of cost of manufacturing, which it clearly did not do. General Walker embraced in the Census schedules for 1880 the items of "wages paid" and "material used," without mentioning any other items in the cost of production. Some would-be political-economists, who added these items and subtracted their sum from the "value of product," assuming that all the remainder represented profit, astounded their readers by showing how much money could be made in manufacturing. Doubtless much harm was done by these figures by inducing an excessive investment in some industries. The fault lay, however, not in the Census figures, but in their unwarranted application.

In the Eleventh Census are included several additional inquiries respecting the manufacturing industries, and the presence in the final reports of the information brought out will at least have the value of preventing some of the mistakes made in the study of the Census of 1880. For convenience in comparison of the treatment of manufacturing statistics in the Census for the two dates, we may select the figures relating to the rubber industry of Chelsea, Mass., for 1890, taking first only those items that were embraced in the Census schedules of 1880, and adopting the treatment of them which obtained so largely among political writers at one time. Eight factories in Chelsea furnish the following items:

Goods manufactured		$2,796,649
Wages paid	$ 482,877	
Materials used	1,891,102	2,373,979
Leaving for profits (according to the former method of reasoning)		$422,670
Capital (plant and live assets)		$2,553,354
Percentage of returns of capital		16⅝%

But in addition to the facts above quoted, other items relating to the Chelsea factories are embraced in the present Census, the consideration of which will both increase the apparent cost of product and increase the amount to be considered as capital invested. The table just given, with the items there omitted, would appear thus:

Goods manufactured		$2,796,649
Wages paid	$ 482,877	
Materials used	1,891,102	
Rent	10,967	
Power and heat	325	
Taxes	12,477	
Insurance	11,241	
Repairs	47,556	
Interest on borrowed money	76,254	
Sundries	54,214	2,587,013
Leaving for profits		$209,636
Capital (plant, live assets, and *hired property*)		$2,709,814
Percentage of returns on capital		7⅞%

Manufacturers do not need the new Census to tell them how many items of cost of production there are in addition to wages and raw material, but doubtless some good will result from the publication of the class of facts referred to above. There is one point, and one of the most important of all, that no Census has ever thrown any light upon, and that no economic writers take account of,—the cost of selling products, and the effect of a failure to sell upon the profit account. The subject will be much simplified when it is more generally understood that no Census schedule has ever embraced an inquiry in relation to the profits of manufacturing, and that any attempt to figure out profits from Census tables means so much labor lost.

METHODS USED IN SELLING FIRE-HOSE.—I.

By a Fire-Hose Salesman.

IS fire-hose always sold on its merits? Most always; or rather it is bought on its merits. There is no purchaser of fire-hose but will say that he picked out the hose he thought was the best. When hand-pumps and engines were the only power for throwing water, and leather the most available article to use in the manufacture of hose, there was very little expected of either, and the expectations were fully realized. As improvements were made in pumping power, so the need of stronger hose was met, first by the so-called rubber hose, and later by the "fabric hose," made of woven and knit cotton and linen. As success was achieved in weaving and knitting circular fabric, the fabrics were successfully lined with rubber.

The occupation of fire-hose salesmen seems to have become a necessity upon the advent of the "rubber hose," which was received by those in charge of fire-departments with as much skepticism as is usual with new improvements. Soon, from a single manufacturer of fire-hose, the industry could show a large number who were looking for the trade, until the necessity of special work to get orders brought out a class of men that has created quite a stir in that small but still growing industry. From the use, abuse, and misfortunes of "rubber hose" came the manufacture of so-called "cotton hose," and it was not every man who could sell "rubber hose" that made a success in selling "cotton hose." The rapid growth of cities and requirements of fire protection has made a wonderful demand, and the predictions that the trade was going to the "demnition bow-wows" have been fulfilled only in part.

Rubber fire-hose, when first put on the market, was sold at $1.50 to $2 per foot, and left a margin of 40 to 60 cents per foot to "whack up" with. Improved machinery, lower cost of labor, and the use of low-grade material by some alleged manufacturers, has been the cause of the fire-hose business being in a decidedly unsettled condition. A craze for low prices, started first by the efforts of some to run others out of the market, brought about the crisis. The orders given out to salesmen then to break prices caused a perfect demoralization of prices, and there seemed no bottom. Of course the result was bankruptcy to some, and justly the ones mostly to blame suffered most.

The record of nearly a score of years in work among the "buyers" has been full of incidents that to some may be of interest, though perhaps of a "chestnutty" flavor to others. But in the actual workings of a deal, nothing expresses it better than the words of that ancient and genial fire-hose manipulator, Col. Isaac Markey, who some years ago, on the occasion of quite a large purchase of fire-hose by a city in Pennsylvania, "got left." In the dead hours of the night, other disappointed aspirants in the deal, returning to the hotel, discovered the Colonel pacing up and down the sidewalk, his hands clasped behind him, sonorously quoting Bible phrases to himself, apparently giving a tongue thrashing to the man he knew most intimately in this world. After several interrogations the Colonel was induced to stop a moment and to explain his agitation by saying: "I'm just kicking myself to think I've been here a week, and all the time 'pulling the wrong man's leg.'"

But I am asked to write an article on the methods employed in selling fire-hose, and will mention some of them. Every deal is a lesson, and this phrase brings the now familiar one so often heard here, "Every fire a lesson." A deal that I became familiar with some years ago took place in Iowa, in a small town of about 4500 souls, with the romantic name of Maquoketa, situated in a very rich portion of the State,—a sort of "still-born" town that simply was born, sat still, and grew and grew. Happy that they had little but good crops and money, until some rambling hustler for trade put a waterworks bee in their bonnet for fire-protection, family uses, and to encourage their brewery. At any rate the agitation resulted in a decision to build a waterworks. Some days after this an energetic hose agent appeared and convinced the members of the town council that, as they were to have waterworks, it would be absolutely necessary to have some fire-hose to complete their necessary outfit for fire-protection. After much cogitation the agent was given an order for 250 feet, which was shipped to them at once. As there was no engine or other appliance in the town, there was no particular thread to have put on the coupling, so the manufacturer put on the first that came handy without regard to the equipments of neighboring towns or the possibility of a special-cut thread ever being needed. The hose and couplings were received and gently laid away in a shed, and several months elapsed before anything further was done about waterworks.

All rested easy; there was ample fire-protection apparatus on hand. One cold night a fire started in a large livery barn, and made a beautiful blaze. Every soul of the 4500 must have turned out to see it. The husky men of the town rushed with the hose in their arms to the scene, dropped one end into a family cistern near by, gently laid the hose along on the ground in the right direction to the front of the burning building, stepped back, and the crowd calmly waited to see it put the fire out. After awhile the fire went out; the lot on which the barn and several other buildings had stood did not burn. The land was saved, but many of the good people were extremely surprised that the hose did not save the buildings. They know better now.

The methods employed in selling fire-hose—it seems to me that is putting it wrong end foremost; wouldn't it be better to speak of methods employed in *buying* fire-hose? It is not a hard job for a fire-hose salesman to demoralize a whole Fire Department, Council Purchasing Committee, the Council itself, and, if the town isn't "prohibition," possibly the whole community. That's an easy question;

but for the reversal of the program, and to have the committee demoralize the manufacturer and hose salesman, that's where the science comes in. The hose salesman has been most thoroughly described as a dispenser of good things besides hose. The salesmen for steam fire-engines, chemical engines, water-towers, and other apparatus suffer from the same represented failing. How do they do it? What are their methods? Of course we can answer truly: none but that of the first law of nature, Self-Protection. What else are we here for? The many incidents of travel, of work, of play, of how to do it and yet how *not* to do it, the getting there, or the "getting left," each has an excitement peculiarly its own. It is more so than even in any other part of the rubber trade, and the methods are but so many incidents, a description of some of which may be looked for in a later contribution.

RUBBER IN THE MAGDALENA VALLEY.

THE importation of rubber from the northern coast of Colombia is seriously hampered by the difficulty in the navigation of the Magdalena. At the mouth of this river are shifting bars, similar to those once found at the passes of the Mississippi, only they are more pronounced, and practically bar the passage of ocean or river steamers. There are three modes of communication between the ocean and the river transportation, and each of them is expensive, it being calculated that the cost of placing a pound of freight on the ocean steamer is equal to that of the further carriage to New York. It is proper to say, however, that the difficulty of navigation of the mouth of the Magdalena is magnified in certain quarters, and that the owners of the railway between Barranquilla and the coast, in combination with the insurance companies, have harped upon the dangers to so great an extent and imposed such exorbitant rates that the channel has been abandoned without sufficient cause.

The ocean steamer now goes to Puerto Colombia, or Savanilla. At the former place railroad communication with Barranquilla, seventeen miles distant, is found. Or lighters can be taken, which furnish another mode. Another means is found in the "dique," which is a rude canal, somewhat improved, and which extends from Calamar to Cartagena, a distance of sixty miles, the former city being located on the Magdalena, sixty-five miles from Barranquilla. This would seem, all factors considered, the natural route to the ocean. The Republic of Colombia is not wealthy, and there is a fear in all South American republics of their instability; in consequence large works of internal improvement are undertaken with great hesitation, and as railways cost less than canals or river improvements, capital is obtained more readily for the first.

In this way the Cartagena-Magdalena Railway Co. has been organized by Boston and New York capitalists, with Thomas R. Wheelock, president; F. B. Beaumont, secretary and treasurer; and William D. Buckner, chief engineer and superintendent of construction. They have obtained important concessions from the Colombian Government, including $600,000 in money and 400,000 acres of land, and have a corps of engineers in the field. President Wheelock is now on the ground, watching the surveys. The profile is an easy one, a single grade of moment appearing in it. This is a factor of importance, as it lessens cost of transportation, and in rubber, which is now found in a great many sections of Colombia, this is a desideratum. Colombia is not yet a great exporting country so far as rubber is concerned, the total from Barranquilla and Cartagena being probably less than a million pounds per year, most of which is taken by the United States.

The rubber districts of the Magdalena valley have been imperfectly explored, but are of large extent. Beginning one hundred miles up the river, the rubber tree is found for a thousand feet up the sides of the mountains. It also grows in great abundance on the tributaries, the Sinu, Atrato, and Darien rivers furnishing the chief supplies. The rubber improves in quality as it approaches the equator, but the difficulties of navigation of the Magdalena increase, and a portage has to be made at Honda, the port of Bogota. Above this point, which is 615 miles from Barranquilla, a superior rubber is obtained, but as the Magdalena beyond is not navigable always and becomes more difficult, the supply is uncertain, and it is a debatable question if it would not pay in extreme sections to send it down the Rio Negro and the Amazon rather than by the Magdalena. In any event the supply of rubber is too great in more accessible sections to give the subject much discussion.

Another difficulty in the way of the present extension of the Colombian rubber trade pertains to labor. There are immense sugar districts and extensive coffee-plantations, and mahogany is cheaper than yellow pine. There are gold and silver mines, plenty of hides to be obtained, and the people to do all this do not reach into the millions, and in the forest districts there are not more than 10,000 persons. To send steamers over places where there is hardly a good-sized dew to bring down rubber, to make the portage at Honda and give up the cost of an ocean transportation at Barranquilla are probably sufficient reasons why the commerce in Caucho—as all rubber is called in that country—is so small. The new railroad may remove a portion of this handicap, but the projectors seem to have given the subject of rubber no study.

The rubber is of two sorts; that from the department of Tolima is excellent, of a yellowish color, and is gathered in a very cleanly way. It comes from regions the least accessible, while that which is pressed into sheets three-quarters of an inch thick is dark, has a chewed-up appearance, is inferior, and sells, when quotations are to be had, at less than two-thirds of fine Pará The future of these rubbers depend largely upon the internal improvement made in the valley of the Magdalena and the growth of the population, and the project of the Cartagena-Magdalena Railway Co. is one step in the right direction.

THE CHEMISTRY OF RUBBER INGREDIENTS AND ADULTERANTS.

*By Henry J. Williams, Chemist.**

VII.—GRAPHITE, PLUMBAGO, OR BLACK-LEAD. †

GRAPHITE is a mineral substance which commonly goes by the name of plumbago or black-lead, but which has no right to such names, for it contains no lead. It has many uses in the arts and is of interest to the rubber-manufacturer, for, although never used in such quantities as zinc white, Paris white, or litharge, it serves many useful purposes in the manufacture of certain classes of rubber goods.

It is well known that caoutchouc possesses the property of holding foreign substances, which are once incorporated with it, very tenaciously. These are generally added to either dilute the gum and make the article cheaper in price, or to impart certain peculiar properties such as hardness, body, toughness, etc., but in many cases also the substance added imparts a uniform color to the product. If the incorporated substances are hard and are added in sufficient quantity, the mass will be suitable for grinding or sharpening, while if they are soft the composition will serve for polishing.

In the category of hard substances may be mentioned powdered pumice-stone, powdered glass, sand, quartz, emery, etc., while in the second that of soft substances may be mentioned, soapstone or talc, colcothar or red oxide of iron, graphite, etc. There are several receipts for preparing grinding, and polishing compositions which have been highly recommended, especially for sharpening and polishing knives. We here give a few of these, recommended by Raimund Hoffer, of Germany :

NO. I.—FOR GRINDING.

	Parts by weight.
Caoutchouc	280
Powdered Emery	1120
Lamp-black	6½

NO. II.—FOR POLISHING.

Caoutchouc	280
Graphite	512
Lamp-black	6½

NO. III.—FOR POLISHING.

	Parts by weight.
Caoutchouc	280
Graphite	488
Lamp-black	6½

NO. IV.—FOR POLISHING.

Caoutchouc	280
Zinc White	84
Yellow Ochre	1120

The addition of lampblack in Numbers I, II, and III is not essential, as its only object is to give a black color to the mixtures.

Graphite or talc, which, of course, must be powdered as finely as possible and purified by washing and settling in the usual manner, are especially well adapted for polishing compositions. The caoutchouc is generally mixed with from 150 to 200 per cent. of these powders and the entire mass is vulcanized by adding 10 to 15 per cent. of the weight of the caoutchouc of sulphur and then subjecting to the steam heat. These polishing or grinding compositions may take a variety of shapes but they are usually made into flat disks and knives are very readily polished by being placed between two revolving disks.

Another important use for graphite is in the manufacture of plumbago packings. For steam use these packings are very popular, and, when well compounded, have great lasting qualities. The sheet of packing is sold unvulcanized. When in use, it gradually vulcanizes, the time taken in this cure adding just so much to its life.

Graphite is tolerably widely distributed in nature and is usually found in lumps or nodules in granite, gneiss, and other crystalline rocks. Sometimes it occurs as the result of the alteration by heat of the coal formation from which it appears to be derived, while it frequently appears also as an ordinary artificial product of the destructive distillation of coal in the retorts of gas-works. The composition of graphite is quite similar to that of anthracite coal, for it usually contains from 90 to 95 per cent. of carbon with from 4 to 10 per cent. of iron and traces of silica, alumina, lime, and magnesia ; but many varieties are far less pure than this, while occasionally remarkable specimens are discovered, such as have been found in Ceylon and in Canada, which are said to contain as high as 98.55 per cent. of carbon. Graphite also contains from 0.5 to 1.3 per cent. of hydrogen, a fact which seems to point to its organic origin. It is opaque and has a steel gray color, a greasy feeling like talc or soapstone, and is so soft that it gives a characteristic black shining streak on paper. Its specific gravity varies with the amount of impurities which it contains, between 2.015 and 2.583, and it is a good conductor of heat and electricity. Crystallized graphite occurs in six-sided tables ; but it is much more commonly found in foliated or granular masses. The best graphite was formerly found exclusively at Borrowdale, in Cumberland, in green slate, but these mines are now almost exhausted, not having been worked for the last twenty-five years. In the sixteenth and seventeenth centuries they were so productive as to yield an annual revenue of £40,000, although they were only worked a few weeks in the year for fear of exhausting the mine. This graphite, locally called "wad," served to make the best kinds of pencils. Graphite is also found at Passau, in Germany, in Bohemia, and in Styria. It likewise occurs in many places in the United States, including considerable deposits at Sturbridge, Mass., and in several localities in New York State. By far the largest mine in the United States is the "Eureka black-lead mine" at Sonora, Cal. The graphite here forms a layer of some twenty to thirty feet in thickness, so pure that it may be obtained in large blocks. In 1868 no less than 1,300,000 pounds were raised in one month. It also occurs in considerable quantities in Canada, at St. John, N. B., in Pennsylvania, and in Ceylon. In Southern

*Member British Society of Chemical Industry ; Deutsche Chemische Gesellschaft, and American Institute of Mining Engineers.

† The preceding articles in this series have been published in the following numbers of THE INDIA RUBBER WORLD :

I.—Whiting and Paris White, January, 1892.
II.—Zinc Oxide or Zinc White, March, 1892.
III.—Litharge, Red Lead, and White Lead, May, 1892.
IV.—Sulphur, June, 1892.
V.—Lampblack and Bone Black, July, 1892.
VI.—Solvents for Rubber—Naptha, September, 1892.

Siberia the substance occurs also in very large quantity, in the Batougal mountains, and is largely exported to Europe.

Natural graphite can be purified into a very finely divided powder by an artificial chemical process. For this purpose it is first ground and well washed in long troughs in order to remove as much as possible of the earthy impurities. The graphite is then pure enough for many uses, but if required in the pure state it is mixed with potassium chlorate and strong sulphuric acid and heated to redness. The compound swells up with a copious evolution of gas and then falls to an extremely finely divided powder of pure graphite having a specific gravity of 2.25. The fine powder is then thrown upon water, on the surface of which it swims whilst the earthy matters sink to the bottom. The foliated graphite answers best for this purpose, the amorphous graphite being less easy to purify, but still capable of being made pure by addition of fluoride of sodium, after the evolution of chlorine-trioxide gas has ceased, the object of this addition being to remove the silica as a volatile fluoride of silicon.

EVERY-DAY RUBBER-MILL TOPICS.

By a Former Superintendent.

MOST of the manufacturers of mechanical rubber goods are more or less familiar with the rubber known as Congo ball. A large portion of this comes from the Congo Free State and is gathered south of the equator. It is a rubber that comes entirely from a vine,—the *Landolphia florida*,—is rather white, moderately clean, and is sorted into three grades. Number 1 is a fairly good rubber and is worth from 38 to 40 cents; Number 2 is not as good, and is worth from 32 to 34 cents; while Number 3, which is the lowest grade, is sold from 31 to 32 cents. This last quality has more bark in it than the other two, and is softer. The storehouse shrinkage of these goods varies from 5 to 12 per cent., and rubber-manufacturers will do well to pay a trifle more for Congo rubber that has lain in the storehouse a few months than to buy a green rubber at even the lowest price. The shrinkage in manufacturing of Number 1 runs from 30 to 35 per cent., and, as has been indicated, is consumed chiefly by manufacturers of mechanical rubber goods. Little is used for shoes, for, as a rule, shoe-men have not had very good luck with any of the Africans. One reason is, perhaps, that the scrap from all the African rubbers, when worked over, softens exceedingly and is difficult to handle. The well-known "thimble" rubber is a Congo, the balls being cut into little cubes. Just why it is cut in this way no one seems to be able to explain satisfactorily; perhaps it is because labor costs almost nothing in the interior of Africa, and the blacks have a childish delight in slashing and carving. The local name for thimble is "Ambrize nuts." This has been used with considerable success by certain of the large shoe-companies, but the majority of those who have tried thimble rubber in shoes have not succeeded in using it with economy. They found, to be sure, that, after carefully cleansing the rubber and eliminating the fine particles of sand which it often contains, they were able to get a very fair sheet. Indeed, the goods, particularly after vulcanizing, looked very well. After a time, however, it showed signs of not being fully vulcanized and was very apt to "bloom," rendering the shoes unsalable, although in no way hurting their durability. This could be overcome perhaps by increasing the amount of sulphur or litharge in the compound. Manufacturers, however, having a carefully established line of compounds, and sure of the results that they secure from them, are very slow to try experiments, particularly where a change of compound may work an evil that is apparent only after a wait of a year or two. In considering Africans it may be of interest to quote a formula used by an old and expert rubber-man for bringing them up to a higher grade. After carefully cleansing the rubber it was put into a "pickle" consisting of 20 pounds of water, 1 pound of creosote, and ½ ounce of *aqua ammonia*. It was left in this for thirty-six hours, and then removed, washed, and dried. According to the inventor of this process the quality of the rubber was improved about 50 per cent. The same pickle was used five or six times before its virtue was exhausted.

* * *

ANOTHER substitute for hard rubber has appeared in the field. According to the opinion of good judges it is a combination of wood-pulp and shellac. It certainly makes a pretty appearance, but whether it will be something that will really take the place of hard rubber is the question. For a number of years inventive genius has been at work to try to displace hard rubber by some cheaper article. Among the many substitutes was one known as diatite, which was a combination of diatomaceous earth (fossil flour) and shellac. This made excellent goods, but as it had to be struck up under the very heaviest pressure, the best constructed steel dies were found to give way under the severe usage, and, after a heroic struggle on the part of the inventors, diatite disappeared from the market. Another scheme was to make an imitation hard rubber of wood-pulp, impregnating the pores with an acid resisting compound made of boiled vulcanized linseed-oil, to which was added sulphur and shellac. This resisted the acid for a time, but, if the liquid was taken out of the jar, even for a short time, and the air allowed to get at the lining, it was found that, when next filled, it leaked like a sieve. Wood-pulp was later treated with asphalt, and for some of the ordinary uses goods were made of this compound that were very cheap and fairly durable. Perhaps the most conspicuous success in this line was what is known as vulcanized fiber, which is wood-pulp impregnated with certain resisting compounds and made up under enormous pressure. This has hygroscopic qualities which make it inferior to hard rubber; these same qualities, however, make it most excellent for water packing, as it absorbs a

certain amount of water and fills the joint so tightly that it packs perfectly. Almost all the compounds have had a gum basis, and a singular compound made of recovered rubber and wood-pulp was used two or three years ago with excellent results. It, however, did not prove to be superior either in effectiveness or cheapness to the ordinary rubber compounds which did not contain a particle of pulp, showing conclusively that the excellence of the compound came from the rubber with which it was impregnated. The new compound is manufactured in East Boston, and for some of the smaller electrical work it is said that already large orders have been taken. The promoters, it is understood, are seeking for capital, and if they have solved the problem as they believe they have, they ought to be able to secure it.

* * *

THE inventor who has a waterproof blacking in which rubber is a component part is around again questioning the manufacturers and carefully guarding his secret as if it were really worth stealing. He is just like the fifty or more who have preceded him in the same line, and his ignorance of rubber is appalling. In order to ventilate this subject a little I am going to give a few receipts that are so old that they have long been forgotten and which were fairly good. Number 1 is in the form of a fairly thick paste and may be applied with a sponge. It consists of 2 parts caoutchouc-oil, 2 parts acetic acid, 2 parts vinegar, 8 parts molasses, 10 parts fine lampblack. Number 2 is a fluid and is made by increasing the vinegar to double the amount used in the above formula and adding a very little Zanzibar gum cut by some cheap solvent. In all probability the zealous inventor will not see this, and I therefore publish it that the manufacturers may be all loaded for him and be able to show him in a very short time that he is throwing his time away in trying to invent things long ago invented, patented, and exploded.

RAILROAD REQUIREMENTS IN RUBBER GOODS.

By I. A. Sherman.

THERE has been a very rapid increase within a few years past in the business of supplying railroads with rubber goods. The magnitude of the business can best be exemplified by showing the carrying capacity of some of the best customers for such goods, as is done in the following table:

RAILROADS.	Mileage.	Locomotives.	Cars.
Atchison, Topeka & Santa Fé	4,582	804	24,532
Baltimore & Ohio	2,954	871	27,557
Chicago & Northwestern	4,258	871	29,832
Chicago, Burlington & Quincy	2,201	517	22,027
Chicago, Milwaukee & St. Paul	5,703	817	26,604
Chicago, Rock Island & Pacific	3,462	553	15,866
Missouri Pacific	5,125	597	20,600
New York Central	2,156	1,056	38,020
Northern Pacific	4,413	651	19,567
Pennsylvania system	5,089	2,539	99,333
Union Pacific	9,093	1,055	26,563

There are other roads, of course, which are excellent customers, but the few mentioned are pioneers in the movement which calls for an increased use of rubber goods. These roads have adopted the air-brake on freight cars, and steam heat and other improvements in the passenger service, and have an interchange of cars which allows of the employment of these devices without inconvenience in the making-up of trains at junctions.

To supply these railroads the several rubber companies manufacture goods of a high grade, and are making a specialty of this class of trade. In former years the railroads required only some packing for locomotives, and tank-hose for filling the tenders. The demand for one article after another in rubber followed until that for hose in large quantities came along, and soon the call for varieties of hose began,—steam-, air-brake, gas-lighting, and pneumatic-signal hose. Each specialty required peculiar compounds, and the ingenuity and brains of the rubber-man were employed to obtain something that would be the best for each particular purpose. Tank-hose is made as large as ten inches in diameter. As a rule this hose is of two-ply thickness and is of course unfit for other uses. In the matter of air-brakes a hose is required that will withstand a pressure of ninety pounds, but, as the wear and tear have to be considered, a higher test is made before its acceptance, and some roads require as standard a 600-pounds pressure. A few of the roads in their specifications call for one or two extra lengths of hose in each hundred feet for testing purposes; and as a rule they make the tests, although the cupidity of some railroads leads them to use all in active service without exposure to an initial strain like that mentioned. Formerly air-brake hose was made similar to water-hose, by merely using duck and the better kinds of rubber both between the plies, and in the top and cover. This hose, when well made, fulfilled the requirements in every way, but a better article is often supplied of the same quality of goods by being wire-wound on the outside. This article when properly made is superior, and two companies make a specialty of its manufacture.

Probably the best air-brake hose that can be made has a heavy rubber top and the various plies of duck outside of the same in connection with the rubber concealed under corrugations, which appear on the surface as large as small ropes and spirally entwining the lengths. This hose is very supple and as springy almost as a Damascus blade, but it is expensive and as yet is used by few roads.

Short railroad systems use what are called vacuum-brakes, and in this connection diaphragms are furnished from eighteen to thirty inches in diameter, and naturally they are quite expensive. The Brooklyn Bridge trains are furnished with this system. The hose used is generally two ply, made in a special manner to prevent its collapsing. In all hose of this character, when wire is used, great skill is exercised to have good material. If the wire is not of excellent quality, it soon gets out of place, or is broken, and, as much dependence is placed upon it in the make-up of the whole, the usefulness of the length or section is soon

gone. In steam hose for heating purposes great care has to be taken in the composition and vulcanization, as it is well known that extreme heat would soon overcure any ordinary article. So in the lighting of cars with compressed gas, a superior article had to be gotten up, as gas is very penetrating and would soon find its way through anything in rubber as ordinarily made. In the late invention of the pneumatic signal, which passes along to the engineer quick, sharp pressures, a strong hose has to be used.

The consumption of all these articles is now enormous, as the railroad people are adopting the new methods, and those which have them now in use are continually adding to their equipment. Then there are constant renewals, for rubber goods at their best are not in the habit of celebrating "centennials." Of course there are innumerable other articles used in the way of rubber around a railroad station, and in cars, such as mats, steps, hose for filling passenger-car tanks, etc. The magnitude of the business can be judged from the fact that many a railroad pays $40,000 per annum for rubber goods.

The Union Pacific, Burlington, St. Paul, Northern Pacific, Northwest, Atchison, Pennsylvania, New York Central, and the Westinghouse people long ago came to the conclusion that the best is the cheapest, and they will not look at inferior goods, while some of them have large laboratories well equipped to decide qualities for themselves. Their tests are those of the expert for composition, quality, permanency, and strength; and unless these requirements can be met, there is not the least use in endeavoring to sell them goods. In this sense the railroad companies are doing good work, for under their demands there is a steady raising of quality everywhere from season to season, and they are gradually driving low-grade articles out of the market.

HARD-RUBBER COMB MANUFACTURE.

THE hard-rubber comb companies generally make three different styles of pocket-combs. They are the "Razor," the "Siamese," and the comb that slides into a case. The "Razor" is so called because it folds into a case on a pivot, the same as the article of cutlery from which it derives its name. The handles are often artistically chased and are thus made ornamental. The "Siamese" pattern consists of two combs united and folding together. The comb that slides into a case is very convenient and often a neat affair. Generally the case is made of leather, with a metal frame which keeps it in shape.

The more expensive styles are the razor pocket-combs. In addition to these varieties is the small comb which is carried in the pocket without protection and which probably finds its greatest use in the dressing of the beard. These are made in lengths of four, four-and-a-half, and five inches, and are sold to the jobber in packages of one gross. These are made "all fine," "fine," "coarse," and "all coarse." The teeth are all short. The "Plantation" comb is that generally found back of the chimney, or on the kitchen-shelf, and is petted by old "aunties," or the pipe-smoking Biddy, who often carries it around in the hair. It comes in short lengths,—three, four, and five inches long. The "ridding" comb is similar to the plantation, and is put up sometimes two gross in a package. It is not so coarse as the plantation, and varies in widths.

Barbers like a very narrow comb, which they can use for clipping. Of dressing-combs there is a large variety, more than one hundred different styles and shapes. They are six to nine inches long. Those in brown and maroon colors are more expensive for the same patterns. The most expensive is worth eight times the cheapest, length, quality, and finish making the difference.

In twist combs, which ladies use to catch the hair on the top of the head and to support the bonnet, there are a dozen varieties. These combs have generally seven teeth, but sometimes only three. They are in all styles, as can well be imagined. Children's round combs are in a dozen or more varieties, the chief difference being in the rim. One sort has stub teeth for the top of the head, with long teeth for the sides. Of fine combs there are plain and fancy, common, medium, and extra widths, and fineness indicated by "S" and "S S." They vary in lengths from two-and-a-half to four inches; although some are made very small for infants' use. The horse-comb is for the mane and tail and has a dozen or more teeth, which are short as compared with the width of the back.

Hair-pins are long, with two teeth bent in a half-dozen shapes, and are sold by the great gross.

The manufacturer of combs has to consult the tastes of different sections of the country. A comb used in Massachusetts will not sell in Texas, the people of the two sections having different fancies. Many women in the Southwest go without a bonnet, and they prefer a different twist comb, or hair-pin, from their Northern sisters. The Italian woman in New York also goes without a bonnet, and the fastenings of her headgear have to be considered. The business is of large proportions and profits are not large, as foreign competition in many lines is keen. The quality of the best sorts is excellent, as the term "unbreakable" applied to a brand of dressing-combs would signify.

MEXICAN RUBBER ITEMS.

THE Government of Mexico is urging on intending exhibitors at Chicago the desirability of securing the largest and most effective display possible of all exportable products, including crude rubber.

The organization is reported of a company with $500,000 capital, to improve the Tuxpan harbor by a process similar to that which has been so successfully adopted at Tampico. The company in question owns large [illegible] land in the neighborhood of Tuxpan, adapted to [illegible] of coffee, rubber, and other plants.

INDIA-RUBBER SCRAP.

WHY not use rubber thimbles? The medical papers are noting a case of blood-poisoning, the remedy of which bears directly upon the rubber business. In the case spoken of the sufferer was a seamstress and the mischief resulted from the use of a metal thimble marked with verdigris. It seems that the thimble-finger was scratched and a little of the verdigris entered the wound. It is said that this is by no means the first instance of the kind. Verdigris of course is a mere metallic irritant and would not cause as severe a case of poisoning as living disease germs. It is sufficient, however, to excite local inflammation, which friction or contact with the cloth-dyes or the entrance of dirt in almost any form might turn into a dangerous disorder. Considering the low cost of rubber or celluloid thimbles, and their cleanliness and safety, there is no reason why they should not entirely supersede the metallic thimbles.

* * *

A GERMAN trade-journal condemns joints made of India-rubber and advises those made of Portland cement. According to their formula the cement is mixed with water to a stiff paste, the joint is cleaned of oil or grease, and the cement applied in a layer 1-5 to 1-3 of an inch thick, depending upon the diameter of the flange and the weight of the cover. The cover is then put on and the joint screwed up cautiously, each nut in the joint being given a few turns at a time. When the cement has been screwed down to 1-8 inch in thickness, it is allowed to set for four to six hours and then screwed up again. The edges are then plastered with fresh cement and wiped off with a cloth a few hours later. It is said that a joint thus made will stand almost any pressure after six or eight hours' setting. It costs but one-twentieth of what one costs made of rubber and one-tenth as much as an asbestos joint.

* * *

AN enamelled cloth made in France has for its waterproof compound Trinidad asphalt 3 parts, linseed-oil 1 part, and whiting 1 part. To this is added about 5 per cent. of African rubber and a little resinate of lime. When used on cloth this is not cured, but simply hung in drying chambers exposed to a current of warm air. Mixed to a stiff dough with a certain percentage of litharge and sulphur it may however be cured, and form a poor grade of hard rubber, which, however, has good insulating properties.

* * *

IT is said that a rubber-covered submarine cable will soon be laid from San Francisco to Honolulu, the route having already been surveyed and pronounced practicable.

* * *

THE pump-manufacturers use every year about a million feet of rubber hose of all sizes, buying in the usual lengths fifty feet. They generally buy the cheapest for the reason, they say, that the public is not educated up to paying for good rubber, and will not pay double for the best, no matter how much the inferior qualities may be adulterated.

* * *

THIS is overshoe time, when unhappy pedestrians feel rubber tired like their betters' carriages.—*Boston Herald.*

ENGLISH magazines have been devoting considerable attention of late to the question of poisoned hat-linings. They quote a paragraph from some American paper speaking of a New York chemist who suffered from headache which he attributed to a new hat. On investigation he found that the lining matter contained forty-seven grains of white lead or litharge which had been employed in combination with boiled oil to give it a glossy finish. The English experts seem to think that this is "one of the lies of the silly season." Whether the man was poisoned or not, however, it may interest some to know that a new substance for hat bands has recently been patented and that too by a lady. Mrs. Ella Neilson Gaillard has perfected a process by which she makes a hat band of a membrane similar to that known as gold beater's skin. It is very durable, absolutely innocuous, and is very cheap.

* * *

HE was an inventor, and his scheme, possibly a good one, was to make a neat little rubber pocket in which to slip a tooth-brush. Then when a flying visit is taken to another town by a man when a tooth-brush and comb are the only baggage, the bristles of the brush are protected from the dust of the pocket. Like almost all inventors he is out airing his idea, hoping to interest capital in it.

* * *

RED-TAPE in public offices bids fair to give way, to some extent at least, before the convenient and serviceable rubber band. The last annual report of the Auditor of Accounts of Massachusetts records the payment by the State, during the year, of bills amounting to $156.79 for rubber bands for official use. Other rubber goods paid for by the State were: Rubber stamps, $102.20; door-mats, $181.91; hose, 311.07; miscellaneous rubber goods for correctional and charitable institutions, $851.62—an aggregate of $1603.59.

A PATENT HARD-RUBBER POLICE CLUB.

[FROM "JUDGE."]

THEY are neat and unsuspicious looking, and may be carried with impunity.

But they are also very useful, and obviate the danger always attendant on working the side door of saloons.

"MACKINTOSHES should not be worn except in wet weather," says a physician. "Many men make such garments do service as overcoats, and this is radically wrong. The body should not be clothed in material that is not porous. It sweats and dries the skin and leaves no outlet for what is cast away."

* * *

THE waterproof cloak is an invention of the evil one, designed to hide the pretty shape of a woman and drip cold water upon the seat of the man next to her.—*Philadelphia Item.*

* * *

THE use of oil as an insulator is receiving marked attention, but in some of the experiments it has been noticed that when it covers the surface of hard rubber, either bare and clean or when the latter is covered with paraffine, the original high surface insulation gives way to that which is much inferior represented by the oil. The normal insulation of the rubber it was found could not be restored until the rubber was recleaned, or again paraffined.

* * *

A NEW packing ring has been introduced into Manchester, England, to take the place of India-rubber. It is made of woven cotton tubing filled with Portland cement, various sizes being supplied. To use them they are thoroughly wet and then after laying them in place the joint is screwed up, care being taken to have an even pressure. It makes a tight packing, the plasticity of the rings making good slightly irregular surfaces, while the joint can be readily parted. While its cost is only one-tenth that of rubber, a new ring has to be used when the joint is opened, and it also takes eight hours for the cement to set.

* * *

THE rubber-clothing manufacturer has not reached the export trade, but when he does, he will find a demand for a coat with a cape that will cover the saddle of the horseman. As it is now, the saddle, with the ordinary coat, forms a sort of channel to thoroughly wet the legs of the rider. The foreigner now caters to this demand, and it goes without saying that it would be in demand in this country on rainy days.

* * *

AN anomaly in the commerce of the day is the fact that the Russian imports crude rubber from South America and elsewhere, pays an import duty, manufactures the gum into shoes and sends them to Germany where another duty is paid, and, in spite of the competition of Germany, England, Scotland, and the United States, holds the trade. The Russian boot is clumsy and that suits the German is the reason given. The shoe will not sell anywhere else than among people speaking German and kindred languages except a few which are taken by Turkey. Austria however takes very few.

* * *

IT is said that rust can be removed from polished cutlery by the use of an ordinary ink-eraser of rubber.

* * *

THE rubber trust is broken the minute the suspender gives way.—*Philadelphia Times.*

* * *

IT is said that celluloid is unfitted for articles requiring mathematical precision, as it is more liable to warp than wood. Celluloid in solution makes a fine lacquer and for metal an exceedingly durable varnish. When dissolved in methylated alcohol and applied to metal it forms a thin skin over it, which is elastic, thoroughly transparent and very durable. Some of the finest silver-ware is dipped in celluloid lacquer and lasts for years without corrosion.

A NEW belting is being made in Lowell, Mass., from a fiber imported from China. The threads are very long and remarkably strong. Belts are woven into a web-like form corresponding to the size of the ordinary belt and are then treated with resin and tar.

* * *

IN this country the tricycle has not nearly kept pace thus far with the bicycle. In England, however, it is very largely used. It is said that in the suburbs of London the laundry women send home their wash by tricycles, and that it is a measure of economy and found to be much more tractable and cheap than the old-time patient donkey.

* * *

CAOUTCHOUC-OIL is used in the German army to prevent metallic surfaces from rusting. It is allowed to dry on, and is removed by applying more of the same and then rubbing off both applications at once. India-rubber dissolved in benzine is well known as a preservative of steel, iron and lead from rust.

* * *

THE use of rubber tissue for the repair of stockings is now advertised in the fashion papers, and the day of the darning-needle and the shell is threatened. The rent is covered with tissue, a hot iron is applied, and the tissue sticks, as it seems to everything, itself included, if heat is applied in a proper manner. Naturally the use of this tissue can be extended to many sorts of mending.

A CHANGE IN ORIGINAL PACKAGES.

[FROM "PUCK."

LEWISON (*off on a trip*)—I packed my grip in the dark this morning, boys, but there's one article I never forget. Will you join me in—

—Thunder! that's the only one the baby has!!

A MILLION-DOLLAR CARGO OF RUBBER.

By I. A. Sherman.

THE largest cargo of India-rubber ever received in this country came on the steamer *Clement*, of the Booth line, which arrived at New York on January 14. The arrival of such a cargo gave the "bears" more confidence, for a week before the *Amazonense*, a sister vessel, had come bounding in with a cargo four times larger than any preceding one for several weeks. The two steamers brought nearly 1300 tons, the *Clement* bringing about 650 tons, the value of which approximates very nearly to $1,000,000. Few cargoes, weight for weight, are so valuable as rubber.

The largest consignees by the *Clement* were Reimers & Meyer, who received regularly 282,500 pounds, and an additional shipment of 37,000 pounds which was billed to them on the *Amazonense*, but for some reason was delayed. The New York Commercial Co. got 221,000 pounds, and then the giant manufactories in the East, the Woonsocket Rubber Co. and the Boston Rubber Shoe Co., received respectively 219,000 and 156,300 pounds. Then Lawrence, Johnson & Co. follow closely, with Hagemeyer & Brunn after them. All these firms have before this provided over $100,000 each in exchange and the leaders nearly $200,000 each. Some Havre merchants brought this way nearly 100,000 pounds, and it is the opinion of the captain of the *Clement* that the route via New York will gradually become the favored one for European buyers. The demands of America, it seems, are growing, and the channel this way for the output of Manáos is constantly deepening; not that the Europeans are taking less, but the Americans a great deal more.

Of the shippers in Manáos, Pusinelli, Prüsse & Co., head the list, shipping 615 cases; the Banco Manáos 493 cases, J. H. Andreson 375 cases, Frietas, Sobrinho & Co. 70 cases, H. de La Baume 100 cases, Marius & Levy 142 cases, Luio Schilt & Co. 152 cases, (the latter for Havre) and Singlehurst, Brockelhurst & Co. 387 cases. The Banco Manáos is a new-comer on the upper waters of the Amazon, based upon Brazilian capital, and it has secured already a large business. The officers of the company are intelligent and full of business. The son of Senor Figueiredo, the president of the company, recently made a trip between Pará and Manáos, and it is said that all who met him were captivated by his shrewd business ideas, his charm of address, and his linguistic ability. From Pará, La Roque & da Costa sent 793 cases; Pusinelli, Prüsse & Co. 203 cases, Singlehurst, Brockelhurst & Co. 110 cases, Norton & Co. 247 cases, and Carvalhos & Co. 34 cases.

A case of rubber differs in weight according as it comes from one or the other of the two ports. At Pará a case weighs generally 170 kilos,* while in Manáos there are two sizes, one of 140 kilos for fine and 240 kilos for coarse. These cases are made of white pine, and the weights given are net, although they cannot be said to be mathematically accurate. The names of owners of the rubber at this point do not as a rule appear in the manifests.

The South American correspondent generally draws on an European banking-house which has connections in this country. This course compels the owner here to make provisions for funds with the banker in New York, who often makes advances, and in that way the financial institution becomes the holder of the rubber until the transaction is completed, which may not be until after the rubber has been placed in store. Generally a local bank advances the funds at once and the consignment is not delayed. One might think, in reading over the manifests, that Brown, Brothers & Co., Baring Brothers & Co., Lazard Freres, the London and Brazilian Bank, and other like financial institutions were huge speculators in rubber, but they are so only in the routine of business.

The consignees are generally identified by conventional marks on the cases. These are very numerous, and often difficult to decipher. Of course when "J. B." is the mark, or "B. R. S. Co.," it is easy to jump at a conclusion. But when there are all sorts of variations in the alphabetical designation, it is sometimes a guess and not a very accurate one. The consignors' names are a help, and the name of the bank in New York often determines the question. Minor marks—"F.," "E. F.," and "S."—often determine the contents, standing respectively for *fine*, *entra fine* and *sernamby*.

The captain of the *Clement*, Charles H Lancaster, ventured the opinion that receipts at Pará and Manáos would be very large for the balance of the season. The Amazon was rising in good shape when he sailed, and from Manáos there were reports of good water to the mountains. The receipts of Caucho latterly have been small, and this was accepted as an indication of the prevalence of low water. Captain Lancaster spoke of the great change in climate which he experienced on the voyage, in this style:

"I left Manáos in very warm weather; the day before we started it was 114°, and on the morning of my arrival in New York the thermometer registered only one degree above zero. Toward the latter part of the trip the weather kept us putting on extra clothes, and the change is a very trying one. Still we do not often get ill. I have been on the line going up the Amazon five years and have good health. They have ague and yellow fever down there, which with care can be avoided, but there is one disease called *beri beri*, a gradual growth of paralysis, which can only be cured by leaving the country.

"There are no docks in Manáos and we have to lie off in the river and take our rubber by lighters. It is all landed there and weighed. There are three biscuits on a short rail, or stick, and the inspector stands over three holes which lead by chutes to as many different cellars. With a knife he slices each biscuit in two, picks out any

*1 kilo=2.20 pounds.

stone or foreign material, and after determining its quality passes it into the appropriate cellar, thus classifying the gum into three grades. Everything in the way of porterage is done upon the backs of laborers, who naturally are very strong, although they often work as a double team. These laborers get good pay and are somewhat peculiar. The night before I left I had much to do in getting aboard my cargo, huge as you are aware, and so I employed a gang. I set a good supper for them but it did not suit, and I saw I was in for it, and told them I would get up another. That gang, however, would not lift a hand until the second supper was eaten. It takes about ten men to put a hundred cases aboard in a day's work.

"We now go down the river in four days, as at this high stage of the water we can cut across the bends, but we cannot dispense with pilots, who make four-hour shifts. The river is rather a stupid, monotonous affair, devoid of life, a few little villages on its banks, and now and then a rubber-gatherer's hut made of sticks and palm leaves to be seen. There is no country back of the banks, twenty miles from Manáos being an impenetrable wilderness, and that is the largest place above Pará. Iquitos, 500 miles above, is the next in importance. Manáos is very dull. In calling in the evening, the ladies will be found to make no conversation, while the ever-present chaperon helps still further to check any flow of talk. Everything is high-priced and nothing that can be bought is very good. It is all rubber, and one sometimes wishes that industries could be diversified on the Amazon, which would render living more agreeable."

COLONEL POPE AND GOOD ROADS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In reply to the article entitled "Colonel Pope and Good Roads," in your newspaper of January 15, let me say that I quite agree with you in your statement that the trouble is a lack of knowledge in dealing with road-construction. Professor Shaler, in a recent article in the *Atlantic Monthly*, on "The Betterment of Our Highways," says that "at present there are probably not fifty engineers in the United States who have been properly trained for the work of constructing highways."

Now, it seems to me that we all ought to do what we can to promote knowledge in regard to the construction and maintenance of roads. Personally I have founded an instructorship at the Massachusetts Institute of Technology, and last summer I urged upon the attention of the authorities of Harvard University the advisability of their taking up road-making as a branch of the college education, and this autumn such a course was established under the immediate direction of Professor Shaler. Graduates in this course will be given the degree of Road Engineer.

I do not agree with you when you say that "as for a permanent road-exhibit in the city of Washington, it would seldom be seen by farmers or those who do most of the traveling over the bad roads of the country." I venture to say that if such an exhibit had been in Washington at the time of the meeting of the Grand Army last year, it would have been visited by thousands of farmers and men who travel over the bad roads of the country, and if such an exhibit were to be opened on the 4th of next March, it would be visited by a multitude of persons who are directly interested in the betterment of our highways.

In the petition which I have circulated the only objects sought to be attained are educational objects, and as there has been so much misunderstanding concerning the petition, I have recently sent a circular letter to some of the more prominent newspapers of the country, which I hope they will publish. I send you a copy and should be very glad if you would publish it. As you represent the interests of the great India-rubber trade of the country, it seems to me that you ought to make a special effort to do all that you can to promote the improvement of roads, because annually there is used a vast amount of rubber in the manufacture of tires for bicycles and other vehicles, and if the roads were in better condition throughout the United States there would be a greatly increased demand for rubber tires. Therefore, as the representative of the rubber industry of the United States, it seems to me that you cannot urge too strongly the subject of the betterment of our highways. Very truly yours,

ALBERT A. POPE.

Boston, Mass., January 23, 1893.

* * *

BELOW are the more essential portions of the circular referred to in the foregoing letter:

DEAR SIR: The petition for a National Road Department at Washington has been signed by thousands of prominent citizens throughout the United States. Among the more distinguished names may be mentioned Governors McKinley, of Ohio, Russell, of Massachusetts, Fifer, of Illinois, Toole, of Montana, Humphrey, of Kansas, Colcord, of Nevada, Smith, of New Hampshire, McKinney, of Virginia, and Millette, of South Dakota. It has been indorsed by chambers of commerce and boards of trade, by trade-unions and labor organizations, by banks and large corporations, and by all sorts and conditions of men. . . . .

It has been asserted by some that the creation of the Road Department would place the roads of the country under control of the general Government, thus taking away all State supervision. Governor Flower, of New York, in his annual message says: "While having no sympathy whatever with that phase of this movement which seeks the establishment of a national bureau of roads and the consequent building of national roads through the country, I am thoroughly convinced that the prosperity of our own State, and especially the interests of the agricultural sections, demand prompt and effective efforts to improve the condition of our highways."

Now the petition does not ask for anything more than "that there be founded in the city of Washington a Road Department, similar to the Agricultural Department, for the purpose of promoting knowledge in the art of constructing and maintaining roads; and we ask that in such Department provision be made for teaching students so that they may become skilled road-engineers. In connection with this Road Department we request

that there be established a permanent Exhibit in which shall be shown sections of roads, illustrating the various methods of construction and also the best road materials and machinery. We further petition that Congress appropriate funds sufficient to erect a building at the World's Columbian Exposition for the purpose of a comprehensive road exhibit."

The object of the Agricultural Department is to promote knowledge in relation to agriculture, and the object of the Road Department would be simply to promote knowledge in relation to roads; and I hope that you will endeavor in the editorial columns of your paper to call the attention of your readers to the fact that its object is simply educational, and in no way does it ask for a single dollar to be spent by the national Government for the purpose of constructing national roads. . . .

Very truly yours, ALBERT A. POPE.

Boston, Mass., January 18, 1893.

TALKS WITH THE TRADE IN BOSTON.

NOBODY in the rubber business is better known than Mr. George Hatch Quincy, the selling-agent in this city of the Candee Rubber Co. He assures the correspondent of THE INDIA RUBBER WORLD that the patronage accorded to the Candee company during the past year has been larger than ever before. "Unprecedented" was the word he used. Commencing with the beginning of the year, he says, the orders began to pile in, and at no time was the company able to fill its orders. All of the time, despite the fact that they ran their factories at their fullest capacity, they were unable to catch up with their business. Even at this writing they are behind on their orders, with no prospective of an immediate let-up. Mr. Quincy says that one of the most noticeable features of the past year's trade is the fact that everybody, or at least almost everybody, insists on having the very best articles to be had. The Candee company, Mr. Quincy says, have agencies in France and Germany, but as for the trade in those countries, he cannot say as much for it as in this. The trouble, he is convinced, with selling rubber boots and shoes in those countries, lies in the fact that the manufacturers there can undersell the American manufacturer. The rubber factories in this country, however, turn out a better article, not only as regards quality, but also as regards general appearance. He says that rubbers made by foreign manufacturers are clumsy affairs, and anything but neat looking. But they are cheap as regards price, and the people will have them. The Candee company have found a certain *clientele* with a craze for something which is imported, and these, he says, will buy none but American rubbers. In short, Mr. Quincy is, for the present at least, rather discouraged as regards the outlook for anything like a remunerative trade in rubbers with the countries across the water.

If there is one thing on which Mr. James Bennett Forsythe is particularly sore, that thing is the McKinley bill. Mr. Forsythe says that the domestic trade of the Boston Belting Co., of which he is the general manager, never was so great as during the past year. He also says that collections are easy, and that there appears to be plenty of money on every hand. As for the foreign business of his company, he says that the much-talked-about McKinley bill practically ruined it. Perhaps not actually ruined it, but in his own words: "It is not what it would have been had it not been for that tariff measure." No sooner was the bill passed than negotiations with several parties abroad who were about to accept agencies for the sale of the goods of his company stopped. Several orders previously given were cancelled. Mr. Forsythe is much gratified to learn that everybody is inquiring for an article which the seller can warrant. They are tired, he says, of buying an inferior article, only to replace it in a short time with what they should have purchased in the first place. Among the specialties which have been in great demand during the year have been tubing and pipes for car-heating purposes. This has been brought about by the laws recently passed in several States in regard to the heating of cars. Only one dark cloud, however, overhangs Mr. Forsythe, and that is the advance of something like 10 per cent. in the price of cotton duck. This, he says, will tend to increase very materially the price of the products of the Boston Belting Co.'s establishment. During the last year Mr. Forsythe says that his company used more than 2,500,000 pounds of duck, heavy sheetings, and drillings. This alone gives some idea of the vast amount of business transacted by the house during the twelve months.

Mr. G. M. Conant, of the Conant Rubber Co., says he is pleased with the business which his house has done during the year just past. It was much better than that done during the year previous. This company, Mr. Conant says, does not even attempt to do any foreign business, for they very well know that they can never hope, under the present tariff regulations, to compete with the manufacturers of rubber clothing across the water. This is especially true, he says, of mackintoshes. When it comes to rubber boots and shoes, Mr. Conant says that the prices during the past year have been much lower than they were for the year previous, but that all of the other lines turned out by his house have brought good pricees. There is a very apparent demand for a better article, and every time a customer turns up he appears to want something a little better than that which he had on the occasion of his previous call. All this, Mr. Conant says, is particularly true of mackintoshes, and he emphasizes this by stating that it is now almost impossible to sell a cheap mackintosh.

A TOURIST from the caverns of Luray, Va., describes a very curious experiment that the guides tried. In the caverns are what are known as blanket stalactites. These, if struck with a stick, give out a dead sound that is not particularly pleasant. If, however, the stick be tipped with rubber, a beautiful note like that of a deep cathedral bell is the result. One of the guides has become so proficient in this that he is able by striking different stalactites to play some familiar tunes, and it is said the effect is wonderful.

OFFICIAL STATISTICS OF INDIA-RUBBER AND GUTTA-PERCHA.

For the United States Fiscal Year Ended June 30, 1892.

[By courtesy of the Chief of the Bureau of Statistics of the Treasury Department.]

INDIA-RUBBER.

I.—Imports of Crude India-Rubber, by Countries.

From—	Pounds.	Value.
Europe:		
France	582,823	$ 246,922
Germany	1,239,721	473,836
Netherlands	433,979	174,036
Portugal	614,507	323,884
England	7,664,595	3,310,889
North America:		
British Honduras	29,861	13,446
Costa Rica	62,089	22,153
Guatemala	115,592	50,927
Honduras	159,523	64,973
Nicaragua	1,027,232	398,538
Salvador	35,992	10,043
Mexico	120,528	41,802
British West Indies	5,472	3,487
Hayti	4,436	2,865
South America:		
Brazil	25,506,516	13,723 671
Colombia	792,715	284,289
Ecuador	887,642	310,829
Dutch Guiana	3,716	1,371
Peru	3,965	1,383
Venezuela	50,078	28,339
British East Indies	316,324	100,556
Dutch East Indies	17,751	5,932
Africa:		
British possessions	31,332	12,702
French possessions	58,060	25,576
Madagascar	174,919	69,796
Africa, all other	36,197	16,180
Total	39,976,205	$19,718,216
Total, 1890-91	33,712,089	$17,856,280

II.—Imports of Crude India-Rubber, by Customs Districts.

At—	Pounds.	Value.
Boston	2,442,920	$ 1,037,430
New York	36,831,724	18,419,330
Philadelphia	12,635	2,657
Galveston	6,580	2,592
New Orleans	675,837	255,209
San Francisco	6,559	1,088
Total	39,976,205	$19,718,216

III.—Exports of Crude India-Rubber, by Countries.

To—	Pounds.	Value.
France	26,435	$ 9,915
Germany	180,683	92,067
Italy	1,885	1,200
Netherlands	4,519	2,169
Russia	6,930	3,500
Spain	267	146
England	1,380,035	758,292
Brazil	100	62
Total	1,600,834	$867,371
Total, 1890-91	1,041,300	$598,251

NOTE.—These exports went from New York alone.

IV.—Imports of Manufactures of India-Rubber, by Countries.

From—	Value.
Austria-Hungary	$ 501
Belgium	1,959
France	108,606
Germany	100,441
Italy	373
England	143,356
Scotland	3,790
Ireland	11,213
Canada	768
Hong Kong	73
Total	$371,580
Total, 1890-91	$354,645

V.—Imports of Manufactures of India-Rubber, by Customs Districts.

At—	Value.
Baltimore, Md	$ 7,035
Bath, Me	13
Boston, Mass	35,639
Fairfield, Conn	58,047
Hartford, Conn	310
New Haven, Conn	17
New York city	216,539
Passamaquoddy, Me	7
Philadelphia, Pa	21,204
Providence, R. I	123
Richmond, Va	34
New Orleans, La	219
Puget Sound, Wash	2
San Francisco, Cal	5,645
Willamette, Ore	456
Buffalo Creek, N. Y	186
Cape Vincent, N. Y	7
Champlain, N. Y	13
Chicago, Ill	19,481
Detroit, Mich	27
Duluth, Minn	3
Genesee, N. Y	275
Milwaukee, Wis	1,040
Minnesota, Minn	23
Oswegatchie, N. Y	11
Vermont	264
Cincinnati, Ohio	1,711
Columbus, Ohio	1
Denver, Col	565
Grand Rapids, Mich	105
Indianapolis, Ind	1,376
Kansas City, Mo	2
Louisville, Ky	449
Pittsburgh, Pa	36
St. Louis, Mo	670
Springfield, Mass	40
Total	$371,580

NOTE.—Of the above imports, goods valued at $109 were reshipped from New York to Germany.

VI.—Exports of Manufactures of India-Rubber (and Gutta-Percha), by Countries.

To—	Boots and Shoes.	Other Goods.
Europe:		
Austria-Hungary	$	$ 300
Azores and Madeira Islands		15
Belgium	1,818	37,618
Denmark	2,571	8,981
France	41,742	110,979
Germany	2,802	127,925
Gibraltar		16
Italy		30,819
Netherlands	2,433	38,832
Russia		7,558
Spain	$	$
Sweden and Norway		500
Switzerland		3,205
Turkey	495	79
England	40,246	6
Scotland		300,811
		47,019
North America:		
Bermuda	108	684
British Honduras		156
Nova Scotia	9,537	5,744
Quebec and Ontario	36,426	228,039
British Columbia	11,475	12,162
Newfoundland	4,528	1,551
Costa Rica	34	4,341
Guatemala	291	7,132
Honduras	35	3,017
Nicaragua	361	4,328
Salvador		2,572
Mexico	2,118	65,815
Miquelon and Langley	1,730	37
British West Indies	206	6,842
Danish West Indies	96	641
Dutch West Indies	35	817
French West Indies		92
Hayti	955	1,596
Santo Domingo	54	879
Cuba	1,184	26,204
Puerto Rico	147	1,997
South America:		
Argentina	55	270
Brazil	1,393	23,635
Chili	30	7,823
Colombia	1,292	12,554
Ecuador	138	1,296
British Guiana		16
French Guiana	2	12
Peru	160	6,653
Uruguay		165
Venezuela	504	7,514
Asia:		
China	523	2,335
British East Indies		368
Hong Kong	223	1,419
Japan	5,678	17,036
Russia in Asia		212
Turkey in Asia		213
Oceanica:		
British Australia	9,304	45,292
French Possessions	49	787
Hawaiian Islands	2,414	13,519
Africa:		
British Possessions	8	2,018
All other countries		51
Total	$183,570	$1,232,497
Total, 1890-91	$141,679	$1,094,764

NOTE.—The exports of rubber boots and shoes embraced 231,105 pairs.

VII.—Exports of Manufactures of India-Rubber (and Gutta-Percha), by Customs Districts.

From—	Boots and Shoes.	Other Goods.
Boston	$ 49,837	$ 171,541
New York	76,977	739,233
Philadelphia		19,465
Puget Sound	5,417	3,563
San Francisco	13,063	55,430
Vermont	35,600	204,588
Champlain, N. Y.		19,250
Baltimore, Md.		3,287
Saluria, Tex.		7,891
North and South Dakota		2,022
Oswegatchie, N. Y.		2,020
All other ports	2,676	4,160
Total	$183,570	$1,232,497

GUTTA-PERCHA.

I.—Exports of Crude Gutta-Percha, by Countries.

To—	Pounds.	Value.
Germany	4,063	$ 2,440
Netherlands	574	230
England	3,920	2,500
Total	8,557	$ 5,170
Total, 1890-91	51,950	$15,110

NOTE.—These exports were nearly equally divided between the ports of New York and Boston.

II.—Imports of Crude Gutta-Percha, by Countries.

From—	Pounds.	Value.
Germany	166,244	$ 48,919
Netherlands	10,243	5,041
England	28,095	5,841
British West Indies	3,244	1,195
Cuba	1,523	33
British East Indies	97,730	53,422
Dutch East Indies	1,160	423
Total	308,239	$114,874
Total, 1890-91	960,835	$164,524

NOTE.—These imports were entered at New York, except 2932 pounds, valued at $86, entered at Philadelphia.

III.—Imports of Manufactures of Gutta-Percha, by Countries.

From—	Value.
Austria-Hungary	$ 18
France	2,006
Germany	55,261
England	3,647
Scotland	343
Canada	1
Mexico	2
Japan	1
Total	$61,276

NOTE.—These imports, to the extent of $60,463, were entered at New York.

OFFICIAL STATISTICS FOR THE CALENDAR YEAR 1892.

[Embracing Later Figures than in the Foregoing Tables.]

ARTICLES.	QUANTITIES.				VALUES.			
	Month ending December 31—		Twelve months ending December 31—		Month ending December 31—		Twelve months ending December 31—	
	1892	1891	1892	1891	1892	1891	1892	1891
Imports:								
Gutta-percha, crude....lbs.	134,935	24,287	559,968	802,474	$ 47,912	$ 8,128	$ 185,031	$ 163,083
India-rubber, crude....lbs.	5,110,855	4,622,897	37,421,081	37,401,634	3,888,768	1,900,214	23,114,472	18,298,092
Manufactures of Gutta-percha					7,415	4,271	61,780	43,646
Manufactures of India-rubber					24,180	33,211	339,544	360,188
Exports:								
Rubber Boots and Shoes....prs.	37,075	23,708	320,168	214,526	24,306	17,988	216,331	173,905
All other manufactures of India-rubber and Gutta-percha					144,246	139,458	1,339,080	1,175,586
Gutta-percha, crude....lbs.			4,063	56,444			2,440	17,840
India-rubber, crude....lbs.	66,513	77,447	996,550	1,723,258	34,073	38,318	535,453	1,004,592
Foreign manufactures of India-rubber and Gutta-percha							112	1,988

EARLE BROTHERS' ANNUAL SHEET.

THE INDIA RUBBER WORLD is indebted to Messrs. Earle Brothers, the well-known New York rubber brokers, for their annual sheet of India-rubber statistics for the year ending December 31, last. It embraces statements of amounts and prices of monthly importations of rubber to the United States for the last six years; comparative rates of fine Pará in Liverpool and New York from 1864 to the present time; the annual exportations during these years from Pará, Central America, the East Indies, and Africa; stocks of the various grades in the United States and Europe; and the consumption of India-rubber by the United States and Canada for the years named. These tables are printed in convenient form, with all the weights stated in pounds. It is interesting to note that various grades of rubber other than Pará have increased steadily in the amount of imports, there having been received in this country in 1872 less than 7,000,000 pounds, while the receipts in 1892 were upwards of 13,000,000 pounds. The latest figures contained in this table relate to the consumption of India-rubber by the United States and Canada for the calendar year 1892. They show:

Imports to the United States	34,348,000
Exports to Liverpool and Continent	1,100,000
	33,248,000
Add stock of January 1	2,435,000
	35,683,000
Less stock close of year	2,725,000
Deliveries to manufacturers	32,958,000

The highest price quoted for rubber in New York is for fine Pará $1.50 in 1864. The lowest price for the same grade within the same length of time is 40 cents, in 1878.

RUBBER AND THE NICARAGUA CANAL.

THE prospectus of the Nicaragua Canal Co. contains a reference to the India-rubber interest, which, while lacking somewhat in accuracy, is worth quoting to show in what estimation this trade is held by the promoters of great enterprises at the present time. The extract follows:

"The cultivation of India-rubber in Central America and on the western coast of Mexico is already attracting attention. The increasing demand for the gum and the destruction of trees in their natural state by the reckless *huleros* or native gum-gatherers makes attention to an artificial supply for future demands of manufacture imperative; already large manufacturing corporations in this country are making preparations to meet it. The tree grows naturally in Central America and Mexico. The western coast of these countries, from the sea-level to 1800 or 2000 feet of elevation above the sea, seems particularly favorable to its best development. This is an industry which will pay tribute to the canal."

A NEW FOOTBALL BOOT IN ENGLAND.

AN English contemporary states that the Belgrave Rubber Co., of Belgrave, near Leicester, England, are introducing this season a new football boot. The special feature of the boot, which is, of course, patented, is a corrugated or fluted India-rubber toe-cap, which is molded to fit over the vamp after the upper is lasted, and sewn on with the sole. It is claimed that the player can exercise greater command over the ball, when either dribbling or kicking at goal, the advantage possessed being even greater when the ball is wet. Our contemporary says all experience goes to support this claim, for the slipping of India-rubber upon any surface is practically impossible.

THE TIRE INDUSTRY.

PUNCTURES IN RUBBER TIRES.

IN every bicycle-factory nowadays everything connected with rubber is a subject for study. The puncture question is a particularly interesting one, and all the companies are at work upon it. A worker in this field who was asked lately why an inflated tire would collapse without puncture, replied:

"Collapse is hardly the word, because that implies something sudden, and deflation without apparent cause is very gradual. An inflated football, no matter how carefully made, will leak so that it has to be reinflated each time it is used, and we have instituted careful experiments with tires, inflating them, and thrown them aside to await results. The best of rubber with perfect valves unused will be in a state of deflation in three months. Rubber is affected by air. You know it turns black upon being exposed to the air. In this connection I will come to a little difficulty we have further on. But air will go through rubber; I believe it will go through anything. Now when we inflate a tire, we put a pressure on the inside of forty pounds to the square inch; on the outside the atmosphere naturally is fifteen pounds to the square inch. From the moment of inflation comes the effort to restore an equilibrium. The first movement in this respect is quite perceptible, as the difference in the pressures is large. The rider, in endeavoring to keep a bounding spring in his tire, has to take some pains to keep the rubber inflated, as the service aids nature in restoring the equilibrium.

"The cotton duck is a large factor in a good tire. We get the closest weave that can be had, and I must say that some of the manufacturers are winning laurels in that respect. They will make a duck that water will not pass through, except in the way of gradual saturation. Then the perfect vulcanization of the duck to the tire is found to be a most desirable qualification, and in this connection comes the difficulty which I intimated. In the early days of punctures,—and the science of restoring the tire from these happenings is not an old one,—it was thought, and it is still believed by some, that a little chunk or wedge of rubber would answer every purpose of repair. It was discovered gradually that a tire once punctured, in one way or another, never gave the same satisfaction afterwards. Periodically, a weak place would appear somewhere, and one almost beyond repair, and before it was found constant inflation seemed necessary.

"Now the first puncture has left an air hole through the wall of the tire and it has passed by the cotton duck. If that is not very thoroughly vulcanized,—in fact it will to some extent anyway,—a current of air will follow the duck around the tire, and if a weak spot is found, then the forces of deterioration will concentrate, and a leak, almost imperceptible, will find its way through the outer layer, the pressure from the inside aiding in making the exit to the outside rather than otherwise. This defect grows with the service, and a puncture comes about which puzzles the rider as to how it happened. Such a trouble is very difficult to repair satisfactorily, and the air diverted goes to the next weak place, and a deterioration of the whole tire is set up. The skill is in repairing the first puncture. To get in a piece of rubber in an almost liquid state completely through the wall of the tire, and have it 'vulcanized' to the rest, cotton duck and all, is the problem we are trying to solve, and we think we have reached it. Of course a poor workman cannot do it, neither can a good workman do much with a tire faulty in the first instance. With all conditions favorable it would seem that satisfactory results depended upon a careful study of each specific case.

"Of course amateur mending in this view of the matter is relegated to what is necessarily temporary, but a puncture that gets into incapable hands will be a worry to the owner of the tire ever afterward. In these days of excessive competition there will be poor tires finding their way into the market, and like cheap hose or cheap shoes, will have their day; but the best makers will have all they can do to keep pace with a demand from that class who will demand the best, and, with such a thing as the bicycle, the cheapest in the end."

* * *

THE RUBBER-TIRE MAKERS.

THE catalogues of the bicycle-manufacturing companies for the season of 1893 are beginning to make their appearance, and they are of interest to the rubber trade on account of the growing prominence that is given in them to the subject of rubber tires. Many of these pamphlets are gotten up in the most attractive style of the printing art, and they suggest an extensive and prosperous state of business. The catalogue of the Pope Manufacturing Co. (Boston, Mass.) states that during the past year the firm have bought and considerably enlarged the plant of the Hartford Rubber Works Co. In addition to manufacturing tires for their own wheels, they announce that the resources of this factory are so great that they can do work on a large scale for outside parties. The same factory is credited in the catalogues of the Hartford Cycle Co. with furnishing the tires used on their wheels. The Hickory Wheel Co. (Newton, Mass.) also advertise that their wheels are supplied with Columbia pneumatic tires, as are the Elliott pneumatic sulky-wheels manufactured by them, a specimen of which was used by Budd Doble behind Nancy Hanks in her wonderful record-breaking feat of 1892.

All the bicycle catalogues do not give any facts in regard to the source of the tires used by their firms. The New York Belting and Packing Co.'s pneumatic tires, however, are mentioned in the catalogues of the Royal Cycle Works of Marshall, Mich., and the New York Cycle Co., No. 17 East Fourteenth street, New York.

The tires manufactured by Morgan & Wright (Chicago) are used on some of the wheels of the Royal Cycle Works, above mentioned, on the "Smalley" wheels, manufactured by the Marble Cycle Co. (Chicago), and on the product of the Illinois

Cycle Works, also of Chicago. Morgan & Wright are also manufacturers of tires for some of the "Sylph" wheels made by the Ames Manufacturing Co. (Chicopee, Mass.) for the Rouse-Duryea Cycle Co. of Peoria, Ill.

The "Lovell Diamond" wheels, made by the John P. Lovell Arms Co. (Boston), use the tires of the Tillinghast Pneumatic Co., of Providence, R. I.

The "Liberty" wheels of Wilson, Myers & Co., No. 55 Liberty street, New York, with factories at Rockaway, N. J., are fitted with the cemented tires of the Columbia Rubber Works Co., and the "Ideal" tire, manufactured by the Phelps & Dingle Co., of Passaic, N. J.

The Overman Wheel Co. (Chicopee Falls, Mass.) announce in their catalogues that they have added to their plant a completely-equipped rubber-mill, which enables them to manufacture every part of their bicycles. They make both pneumatic and cushion tires, using antimony in compounding their rubber, to which they give the name of "Victor red rubber."

The Elastic Tip Co., No. 370 Atlantic Avenue, Boston, write to THE INDIA RUBBR WORLD that they are manufacturing three different styles of pneumatic tires,—their "Boston" tire, made in red rubber; the "Cambridge" tire, similar in construction to the "Boston" tire, except that it is of a cheaper grade; and the "Acme" tire, which is offered as the "best inner-tube tire in the market."

The George C. Bidwell Cycle Co. (New York) advertise a rubber tire factory at Nos. 49–51 West Sixty-sixth street. They also advertise as Eastern agents for the St. Nicholas Manufacturing Co.'s "Safety" on which the Bidwell tire is used. The "Sylph" wheels of the Rouse-Duryea Cycle Co. (Peoria, Ill.) are furnished with any style of tire desired by the purchaser, but are fitted ordinarily with the Bidwell tire. The same tire is supplied with the wheels of the Harry Svensgaard Bicycle Co., of Fergus Falls, Minn.

Other firms manufacturing rubber tires are the Boston Woven Hose and Rubber Co., the Revere Rubber Co., and the Home Rubber Co., now making cushions and soon to start on pneumatics. The Eastern Rubber Manufacturing Co. just established at Trenton, N. J., expect soon to make pneumatic tires, and the new company now being organized by A. Straus to operate a factory in east Seventy-third street, New York, will manufacture tires. It may be added that the tires supplied by the Columbia Rubber Works Co. are manufactured by the B. F. Goodrich Rubber Co. (Akron, Ohio.) The tires supplied by Tillinghast Co. are made by the Mechanical Fabric Co., of Providence, R. I.

The "Straus" tire is advertised as a part of the "Falcon" wheels, manufactured by the Yost Manufacturing Co., whose product will be sold this year by the W. Bingham Co., of Cleveland, Ohio.

A representative of the Seddon Pneumatic Tire Co. (Manchester, England) has been in New York recently for the purpose, as is understood, of forming a company in the United States for the manufacture of that tire. The importation of pneumatic tires has been very large of late, and the manufacturers on the other side of the Atlantic feel that there is room here, in addition to the local production, for the sale of their respective styles of tires. The Seddon is of the Dunlop inner-tube type. It is notable because it was the first one to be fitted on racing sulkies in England. It is said that shares of stock in the foreign company of the par value of $5 are now sold for $14.

It is asserted that a large tire-manufacturing concern has sent circular letters to all the similar establishments in this country inviting expressions of opinion on the formation of a combination in that large and growing interest. The *American Cyclist* (Boston) says that there are at least twelve makers of bicycle-tires in this country now supplying the market, which will require at least 150,000 pairs this year. The gross value of this output is about $3,000,000. While some leading houses in New York have denied the report of the proposed combination, the *Cyclist* says that it cannot be doubted that the plan was proposed.

THE INDIA RUBBER WORLD has been informed by members of the trade that the only effort at combination that has been suggested has been in the nature of an agreement upon prices.

* * *

TIRES AT THE PHILADELPHIA SHOW.

AT the third annual cycle show, held last month in Philadelphia, there were represented sixty-seven manufacturers making a specialty of bicycle construction. These firms, while not representing the whole business in this direction in the United States, represented an invested capital of more than $1,000,000. They employ thousands of hands during the year, disbursing many millions of dollars in wages and in the purchase of material for the manufacture of their wheels. In the one item of tires alone, as asserted by the *American Cyclist* (Boston) and by others, the makers of wheels consume more India-rubber than any other single interest in the United States. During the first week of the Philadelphia show the total number of wheels exhibited was 429. It is a remarkable fact that there was presented but one solid tire, and that was on an imported wheel. There were only six cushion tires in the whole lot, and over 98 per cent. of the whole exhibit was made up of pneumatic-tire wheels. To quote again from the *American Cyclist*: "In the class of pneumatic tires, 10 per cent. of the makers show the Boothroyd as a leading type, and 27 per cent. show the Boothroyd tires in their exhibit; 73 per cent. show the Dunlop type as the leading tire; about 16 per cent. of the makers were prepared to fit either Dunlop or Boothroyd type of tire. In the total number of wheels shown with pneumatic tires, 85 per cent. were Dunlop type and 15 per cent. were of the Boothroyd type." All reports are to the effect that the exhibit as a whole showed that a marked advance had been made by the trade in the general outline of the wheels, in material, and in the care taken in construction and finish.

* * *

A LARGE FACTOR IN THE RUBBER TRADE.

THE business of manufacturing bicycles is of comparatively recent growth, and although some may have a good idea of the extent of the business and the rapidity with which it has developed, only a very few are in position to realize the fact that the construction of tires for bicycles consumes a larger amount of rubber than that used in any other one business. It would seem that in the manufacture of rubber clothing, overshoes, and the like, an immense amount of rubber must be used, but even that is less than the amount consumed in making tires for bicycles. This is simply another index of the magnitude of the wheel business.—*The American Cyclist.*

* * *

THE North British Rubber Co. turn out 600 pairs of tires per month. In England a mammoth company called the Cycle Rubber Works, Limited, have been formed for the purpose solely of making tires. Among the rubber companies abroad largely interested in the making of tires are the Pneumatic Tire Co., in Ireland, Charles Macintosh, W. Warner & Co., The India-Rubber, Gutta Percha & Telegraph Co., The Midland Rubber Co., and the Seddon Tyre Co., all in England.

BRIEF ABSTRACTS OF RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully :

TIRES.

No. 488,670.—Attachment for Rims of Wheels. Preston Davies, London, England.

A protective cushion between the rim of a wheel and its tire consisting of tubes adapted to be filled under pressure from a single valve and provided with one or more coverings of canvas or other similar material secured to the rim and serving to hold the tubes in position between the edges of the rim and the tire.

No. 488,852.—Tire for Bicycles. Walter Swain and William Philipson, Astley Bridge, near Bolton, England.

As an improved article of manufacture, a pneumatic tire consisting of a tube, a steel tape wrapped spirally round the entire circumference of said tube so as to leave spaces between the spirals, a secondary steel tape wrapped spirally round and breaking joints with said first mentioned steel tape, and a canvas covering for the said tapes and tube.

No. 489,295.—Pneumatic Tire Sterling Elliott, Newton, Mass.

In a pneumatic tire for wheels, the combination with a metallic rim, and an expansible core on and attached to it, of a tread face interlocking with said rim, and composed of a rubber surface secured to a fibrous backing, the said tread face being fulled at its edges to thereby shorten them and secured to retaining strips along said fulled portion.

No. 489,500.—Tire for Cycle-Wheels. Frank Sweetland, Angola, N. Y.

The herein described cushion tire, the same consisting of the outer or external tube, and a series of inclosed smaller tubes said external tube being provided upon its inner side with ribs tuking between the inner tubes, said ribs being hollow.

No. 489,714.—Bicycle and other Tubing. John F. Palmer, Riverside, Ill.

As a new article of manufacture, a rubber tube for pneumatic and similar purposes, having spirally wound thereon, and imbedded and held therein by vulcanization, fibrous threads of a substantially non-stretching character, substantially paralleled with but out of contact with each other, and methods for making it.

No. 489,975.—Tire for Bicycle-Wheels. John J. McComish, Providence, R. I.

In combination with a wheel, having an elastic convex tire, a rim having flanges on each side, and auxiliary tires secured to said flanges, but less distant diametrically from the hub of the wheel than the central tire.

No. 490,035.—Manufacture of Pneumatic Tires. Fred W. Morgan and Rufus Wright, Chicago, Ill.

Molding and vulcanizing an endless and seamless tubular tire sheet or casing upon an annular mandrel, and then completing the tire without materially affecting or impairing the integrity of the sheath as an endless and seamless tube, and to such end opening the sheath to a limited extent along its seating portion, separating the mandrel adjacent to such point, causing the sheath and mandrel to part from one another by the way of the opening thus formed, introducing an air tube within the sheath through said opening, and then closing the latter.

SADDLERY GOODS.

No. 488,572.—Horse-Collar. John Millidge, Bailey's Harbor, Wis.

As an improved article of manufacture, an inflatable horse-collar having integral inflatable body and roll thickened or reinforced at the juncture of the two straps at the ends of the collar, and an independently inflatable neck-pad independent of the collar and curved and provided at each end with straps for securing each end around a portion of the collar proper.

No. 489,896.—Hoof-Pad. James W. Fanning, Chicago, Ill., assignor of one-half to Gordon H. Quinn and William H. Quinn, same place.

As an improved article of manufacture, a hoof-pad made of a piece of elastic material having a flat top surface continuous over the entire bottom of the foot and provided with a depression in the central portion toward the front and gradually lessening so as to vanish near the margin, a bottom surface reduced at the margin around and a little behind the toe-quarters so as to fit between a short metallic shoe and the outer shell of the hoof, a thickened central portion whose bottom surface is convex-shaped like a section of the surface of an ovoid and adapted to fill the concave inner edge of the shoe and project slightly beyond the plane of the bottom of the shoe, and a thickened heel piece extending across behind the ovoid section and short shoe and having its bottom surface flat on a level with the bottom of the shoe.

DRUGGISTS' SUNDRIES.

No. 489,544.—Syringe-Tube Holder. James C. Parker, Woodston, assignor of one-half to William Rosegrant, Alton, Kan.

In combination with the suction tube of a syringe, or similar article, a holder comprising a hollow shank, communicating with the suction tube and having induction or inlet apertures, and a subjacent, hollow, bell-shaped sucker adapted to be held in contact with the bottom or side of a vessel by atmospheric pressure.

MECHANICAL RUBBER GOODS.

No. 489,478.—Hose. John E. Hopkinson, London, England.

A flexible hose having a uniform internal bore and smooth or plain interior and exterior surfaces and provided with a soft rubber tube and with reinforce rings, bands or spirals of hard rubber embedded in the tube and vulcanized therewith and flush with the surface thereof.

NOTIONS.

No. 489,783.—Corset-Shield. David Busch, New York, N. Y.

A corset-shield, consisting of a sheet of cork surfaced on its opposites sides with elastic waterproof adhesive tissue, and a covering of elastic textile fabric connected with the opposite sides of the cork through the medium of the adhesive tissue, said shield being provided with ventilating orifices and eyelet-holes which extend through the cork and textile fabric.

MISCELLANEOUS.

No 488,667.—Implement for Cutting Glass. Charles Stewart, Washington, D. C.

The combination of a straight handle provided with rubber grips capable of sliding upon the handle, and a curved blade set in a plane at right angles to the plane of the handle.

No. 489,551.—Electrical Diaphragm. Charles N. Waite, Newton, Mass.

An electrical diaphragm consisting of a sheet or layer of acid resisting fibrous material and bi-chromatized gelatine.

No. 489,697.—Substitute for Sponges, Brushes, etc. Walter M. Taylor, London, England.

The general arrangement and construction of the hereinbefore described device consisting of an elastic collapsible chamber, one face of which is provided with a number of ridges or points between which are arranged a number of perforations.

A NEW RUBBER-RECLAIMING COMPANY.

THERE were filed in the office of the Secretary of State of West Virginia, at Charleston, on January 13, the following articles of agreement, the signers of which have obtained a certificate of incorporation:

ARTICLES OF AGREEMENT OF THE UNION RUBBER WORKS COMPANY:

THE undersigned hereby agree to become a corporation by the name of the Union Rubber Works Company, for the following purposes, viz.:

To manufacture rubber goods, and other wares and merchandise; to buy and sell the raw material and the manufactured product; to acquire, by lease or purchase, all property, both real and personal, and all patents, rights, privileges, and franchises necessary therefor; to lease, sell, or otherwise dispose of the same, and to do and perform all acts requisite to be done in carrying on a general manufacturing and trading business, both in the United States and in foreign countries; also, in accordance with the laws of the State of West Virginia, and in compliance with the provisions thereof, to subscribe for, purchase or sell, the stocks, bonds, or securities of any corporation formed for the purpose of manufacturing or producing any articles used in the business of this Company, or dealing in any articles or materials manufactured or produced by this Company.

Which corporation shall keep its principal office or place of business in the city, county, and State of New York, and shall carry on business both in the United States and in foreign countries, and is to expire on the first day of January, 1943.

And, for the purpose of forming said corporation, we, the undersigned, have subscribed the sum of $10,000 to the capital thereof, and have paid in on said subscription the sum of $1000, and desire the privilege of increasing the said capital by the sale of additional shares, from time to time, to $1,000,000 in all. The capital so subscribed is divided into shares of $100 each, which are held by the undersigned respectively as follows:

By William Pretzfeld, New York city.....twenty shares.
By Joseph C. Hatie, New York city..... ...twenty shares.
By Isaac N. Heidelberg, New York city.....twenty shares.
By Jules Frowenfeld, New York city.....twenty shares.
By John J. Curtis, New York city.....twenty shares.

And the capital to be hereafter sold is to be divided into shares of the like amount.

Given under our hands and seals, this 10th day of January, 1893.

The incorporators of this company have not been, so far as known, interested in the rubber trade before, and their connection with the transaction is probably similar to that by which certain leading bankers and financiers in New York recently assisted in the transfer of several corporate properties, with which they had previously had no connection, to the United States Rubber Co. They are:

William Pretzfeld (Wm. Pretzfeld & Co.), Tobacco, No. 165 Water street.
Joseph C. Hatie, President Mutual Fire Insurance Co., No. 47 Cedar street.
Isaac M. Heidelberg, Clothing, No. 64 Broadway.
Jules Frowenfeld, Hides, No. 11 Ferry street.
John J. Curtis, Real Estate, No. 234 Broadway.

From a thoroughly trustworthy source it is learned that this company is formed for the purpose of manufacturing reclaimed rubber and articles in which reclaimed rubber forms the principal component. It has secured some valuable new inventions by which not only a much better article will be produced than heretofore, but also at a much lower cost. This will enable the rubber to be used in many articles as principal component, where heretofore it has been used in comparatively small quantities. It is this line of goods the company intends to manufacture.

It is the intention to build, purchase, or lease works in different sections of the country in order to take advantage of freight rates. These works will be located in centers where the raw material is collected in largest quantities. This company is now in treaty with the Canal company at Niagara Falls, for a site with power; the other locations will be in Massachusetts and New Jersey.

The company has already secured very advantageous works near Manchester, England, which are now being put in condition for the needs of the business. The principal machinery and appliances have been bought on this side. The new company will not be a stock-jobbing enterprise; no stock will be offered to the public. The parties interested are men of ample means.

THE HEAVY TRADE IN RUBBER SCRAP.

IT is estimated that the quantity of old rubber boots and shoes collected annually in the United States, for the manufacture of reclaimed rubber, amounts to about 25,000,000 pounds. This industry is about fifteen years old. About the year 1878 some Boston parties commenced to separate the fiber, metal, and other materials, by a mechanical process, from the rubber contained in the old rubber boots and shoes, and the product, after being devulcanized, was sold to the rubber-manufacturers, to be used over again in the manufacture of rubber goods. Some years later several factories were started to use what is known as the chemical process to eliminate the fiber, metal, etc., from the old rubber boots and shoes. There are to-day some ten factories engaged in the industry.

The old rubbers are principally gathered in the West by peddlers, who buy them or barter them in the country from farmers and miners in exchange for tinware or notions. The peddler at the end of the day or week carries them into town and sells them with his other collections of rags, old metals, etc., to a dealer in paper-stock, or to the general store from whom he buys his supplies of merchandise. There are probably more than 10,000 peddlers engaged in the business in this country. The dealer in turn ships these rubbers, after he has accumulated several tons, to one of the larger distributing centers, such as Chicago, Milwaukee, Cleveland, Buffalo, Detroit, etc. In these places are located the larger wholesale dealers in paper-stock and old rubbers, who properly assort and pack

them, and who in turn ship them to the manufacturers in the East.

In the larger eastern cities, the junk-man, with his hand-cart and bell, is the medium of collection. In the city of New York the great bulk of old rubber boots and shoes is collected on the dumps of the Department of Street Cleaning, the privilege of assorting and picking over the refuse for anything of value being sold by the city annually. Quite an army of Italians are engaged in this service who work for the city contractor. Old rubber boots and shoes are a staple and can be sold as readily at all times as United States bonds, their market value being quoted in the trade-papers the same as crude rubber and other raw materials.

Loewenthal & Morganstern, of New York and Boston, who have, during the past ten or twelve years, made a specialty of handling old rubber boots and shoes, report that their purchases in that line during a single year have amounted to over 15,000,000 pounds, and in a single month to as much as 2,250,000 pounds. This firm supplies the manufacturers of reclaimed rubber, who find it to their advantage to make large contracts for stated periods rather than to purchase their supply from so many different sources.

There is a growing trade in the importation of material of this class, as shown by the following official statement of the United States Treasury Department for the year ended June 30, 1892:

FROM—	Pounds.	Value.
Germany	319,853	$ 8854
Russia	15,102	408
Sweden and Norway	11,516	306
Turkey	39,230	1,036
England	806,787	41,925
Canada	534,817	13,880
Newfoundland	764	31
Colombia	1,000	40
Hong Kong	2,717	235
Total	1,841,786	$66,775
Total, 1890-91	488,163	$19,448

The exports under this heading amounted to 4736 pounds, valued at $237. The Treasury reports do not separate old rubber boots and shoes from other waste, such as old car-springs, hose, and belting. The total imports of old rubber boots and shoes from foreign countries for the year named are estimated to have been about 175 tons, with a value of about $11,000. The remainder of the sums given above relate to other forms of rubber waste.

RUBBER BOOTS AND SHOES.

REFERRING to an interview in a recent number of this journal with a rubber-shoe manufacturer on the trade in his line in the South, George W. Perry, of St. Louis, said to the *Shoe and Leather Gazette*, of that city:

"The American Rubber Co. has a fine Southern trade, especially so in pebble-top boots, strap sandals, and lumbermen's arctics. It is in the South, as every where else, that rubbers are not worn for pleasure, and Southern ladies want to keep their feet dry as well as any one else. All of the rubber companies having St. Louis agents do a large Southern trade. It is perfectly natural that a warmer climate should require less rubber goods than a colder one where snow is more abundant. The tennis-shoe trade in the South and in Texas especially has vastly improved in volume, and the trade in heavier rubber goods is brisk all over the South, so brisk in fact that St. Louis jobbers are rushed to get enough stock to meet the demands. As to the South being free from traveling men, so far as rubber boots and shoes are concerned, that is a mistake. It may be true as regards mechanical rubber goods, however. The South is to-day a good rubber-boot and- shoe market and is continually improving."

* * *

THE FIRST RUBBER-SHOE "COMBINE."

IN 1857-8 the first rubber combination was formed. It was termed the Goodyear Shoe Association. Their circular says:

"The troubles experienced by the manufacturers of rubbers are enhanced from the non-uniformity in prices and discounts between the various agencies. Some method of action whereby confidence in the stability of prices could be restored was deemed of the utmost importance. To this end the several legalized companies in the United States manufacturing boots and shoes under Goodyear's patents agreed upon a basis of action and effected a consolidation. The points are:

"1. The establishment of two branch agencies, through one or the other of which all goods made by the companies must pass.

"2. By limiting the manufacture of goods, so that the market shall not be overstocked, but, so far as can be arrived at, the supply and demand shall be equal.

"3. The establishment of a uniform tariff of prices and rate of discount."

"*Agents.*—Wales, Emmons & Co., No. 66 Pearl street, Boston; Breeden & Southwick, No. 107 Liberty street, New York.

"E. S. CONVERSE, "N. N. HALSTEAD,
"Secretary." "President."

—*Shoe and Leather Reporter, February 2.*

* * *

COLUMBUS AS A RUBBER-MAN.

THE claim that Columbus introduced rubber boots to the Indians is made by a recent author, "Mr. Woonsocket of R. I." In defense of his position he writes a book which bears the euphonious title "How Columbus Tickled the Indians in Ten Tickles."

The illustrations of this valuable addition to the bibliography of Columbus tell the story even better than the text, and it is upon them that the reviewer will spend most of his time. The frontispiece represents the adventurous discoverer standing on soil that looks to be American, with a sword in his right hand, his left indicating to a group of painted savages that the huge treasure-box lying on the beach before them is at their disposal. This box, by the way, is labeled Woonsocket Rubber Co. The second illustration shows that the Indians have taken the gracious hint and with tomahawk and spear-head opened the box. They see the point in a flash, for the box is full of rubber boots, shoes, and arctics, and putting them on feet and hands they are in the midst of a primitive skirt-dance. Columbus looks on benign and calm. Illustration No. 3 depicts the same party standing knee-deep in a running stream, well protected by hip boots and wading trowsers and catching salmon at a rate that must make Walter S. Ballou wish he had been born four hundred

years earlier. No. 4 shows the fishers caught in a violent rainstorm on a dead run for shelter, but withal clinging to boots and fish. They find the shelter in No. 5 by turning the large empty treasure-box upon its side and crawling into it. The view affords the scientist a valuable chance to study aboriginal shins ending in generous pedals, shod with arctics and lumbermen's footwear. No. 6 depicts the party, rubber-shod, softly treading the forest paths on a hunting expedition. No. 7 shows a startling disaster. Under the exhilaration of fire-water a burly chief, armed with a bell mouth blunderbuss has blown an unsuspecting comrade "out of his boots." No. 8 introduces the "Indian ladies" who, clad in the daintiest of rubber footwear, parade with mincing steps under the shade of palm leaves before Columbus. Nine shows that when the rest of the tribe knew what a good thing the others had struck they resolved to share in the good luck. Ten depicts The Whole American Continent in grand procession rejoicing over the Woonsocket goods. To those interested in rubber footwear this book is commended, with the further information that it may be obtained from the Woonsocket Rubber Co. at their offices in Boston, Providence, New York, Chicago, or Baltimore.

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A STOCK OF RUBBER SHOES.

THE following assortment of rubber shoes is carried by one of the large retail stores in New York city. The store is not an ultra fashionable one, but is a fair criterion for a miscellaneous trade in the city and suburban towns:

Ladies' High-Button Arctics—Widths M and F:
- Sizes ..... 2½ to 8

Misses' and Children's Extra High-Cut Button Arctics, wool lined:
- Misses'—with heels..... Sizes 11 to 2
- Misses'—Spring heels..... Sizes 11 to 2
- Child's—Spring heels..... Sizes 7 to 10½

Alaskas wool lined—Widths M and F:
- Ladies'..... Sizes 1 to 8
- Misses'—Heels..... Sizes 11 to 2
- Misses'—Spring heels..... Sizes 11 to 2
- Child's—Spring heels..... Sizes 6 to 10½

Croquets—Widths M and F:
- Ladies'..... Sizes 2½ to 7
- Misses'..... Sizes 2½ to 7

[The same with spring heels.]

High (Storm Slippers):
- Men's.....
- Ladies'.....
- Misses'..... Sizes 11 to 2

Sandals—Widths N, M and F:
- Ladies'—Extra light weight..... Sizes 2½ to 8
- Ladies'—Medium weight..... Sizes 2½ to 8
- Misses'..... Sizes 11 to 2

[The above also with spring heels—Widths M and F.]
- Child's..... Sizes 6 to 10½

Footholds—Widths M and F:
- Women's..... Sizes 1 to 7
- Men's..... Sizes 5½ to 11

French heel—for high heeled boots—Widths M and F:
- Sizes..... 1 to 7

Buckle Arctics, wool lined—Widths M and F:
- Ladies'—Light weight..... Sizes 2½ to 8
- Men's—Light weight..... Sizes 6 to 11
- Men's—Heavy weight..... Sizes 6 to 12
- Boys'—Heavy weight..... Sizes 1 to 6
- Misses'—Medium weight..... Sizes 11 to 2
- Child's—Medium weight..... Sizes 7 to 10

Men's Cloth, Wool and Net lined self-acting Alaskas—Medium and Broad Toes:
- Widths M and F..... Sizes 5½ to 11
- Widths F and W..... Sizes 7 to 11

Men's High cut Arctics:
- Sizes..... 6 to 11

Men's and Boys' Sandals—Widths M, F, and W:
- Sizes..... 11 to 13½ and 1 to 12

[Also Broad toes, and the same in Zephyrs.]

Men's Clogs—Medium and Broad toe—Widths M and F:
- Sizes..... 5½ to 11

[Also the same in One Strap Sandals.]

Men's, Boys' and Youths' very high boots, Wool lined—Widths M and F:
- Sizes..... 11 to 13½ and 1 to 12

[Also the same in knee boots.]

The same in Ladies', Misses' and Children's boots:
- Sizes..... 6 to 13½ and one to 8

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BOOT AND SHOE FINDINGS.

IN the rush of the boot- and shoe-manufacturers last season a difficulty was experienced in the way of labor that never was had before. It is usual in this respect to engage young girls, placing them upon light work at first, and then progressing them to wool goods, and so on. A new hand is naturally of little value, and often it is six months before they become adepts. Things went along quite smoothly in the latter part of spring, and the manufacturers did not themselves anticipate that they were to be so busy, and so they did not notice that their labor was drifting away. The seaside resorts opened, and the rubber girls took up the pleasant duties of waitresses, and they would not come back until September. This difficulty was far-reaching and a cause of great perplexity to manufacturers.

—Business at the factories of the Boston Rubber Co. (Franklin, Mass.) is reported exceedingly brisk. The shipments for two days recently embraced 340 cases of goods for the western trade.

—The Marvel Rubber Co. are turning out over 700 pairs a day of "The Marvel," a ladies' light, pure-gum overshoe made of one piece and without a lining. The demand for these shoes is way ahead of the supply. They are made to fit any ladies' shoe, opera, and common sense, and in M F and F F widths.

—The Woonsocket Rubber Co. are selling a good many of their men's zephyr boots. They weigh about eight ounces, and are intended for pedestrians in the city who desire a high-top boot, and naturally do not care for the usual weight, which is fatiguing oftentimes to the wearer.

—The news from Bristol, R. I., is that the outlook for the boot-makers at the works of the National India Rubber Co. is very encouraging. Orders have been given to take an account of all the boot-trees on hand, and to set aside any that may need repairing.

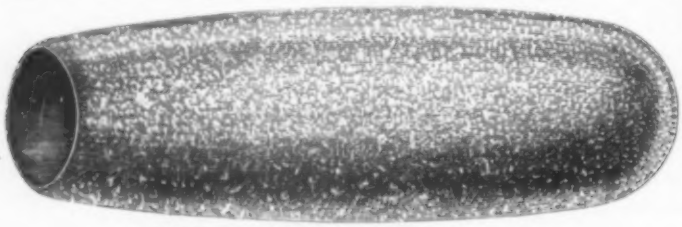
—It is reported that wool boots are in great demand at points much farther south than has been the case for a many years in the past.

—The Toronto Rubber Co. have recently experienced some changes in management. The vice-president, Mr. T. McIlroy, Jr., and the secretary, Mr. M. Macpherson, have resigned, and the general policy of the company is directed by Mr. J. H. Taylor, who for some time has been the treasurer. Mr. James A. Young still controls the selling of the goods, and reports trade as beyond the most sanguine expectations.

—The Canadian Rubber Co., it is stated, have made a recent shipment of 6000 cases of rubbers to France. The trade which opened in that direction last year has evidently become quite an established thing.

NEW GOODS AND SPECIALTIES.

AMONG the numerous substances which have been experimented with in the manufacture of bicycle-handles has been rubber in different forms, and up to date the results have not been wholly satisfactory. In a recent number of the *Irish Cyclist*, the editor, Mr. R. J. Mecredy, himself an experienced wheelman, writes: "Of all substances solid rubber is the worst for handles. It filthies and blisters the hands, and is hot and uncomfortable. Cork handles are the pleasantest, but they wear badly." In the illustration herewith is given a view of a bicycle-handle which has been designed with a view to meeting the objections to both rubber and cork when used alone. The two substances are combined, with the result that the handle presents the absorbent qualities of the cork and the elasticity of rubber. Although the particular handle under consideration will retain its position upon the bar by natural adhesion, additional security is provided by ferrules screwed to the bar at each end. This bicycle-handle is used on the "Liberty" wheel, manufactured by Wilson, Myers & Co., No. 55 Liberty street, New York city, and Rockaway, N. J.

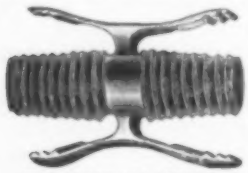


RUBBER-AND-CORK BICYCLE-HANDLE.

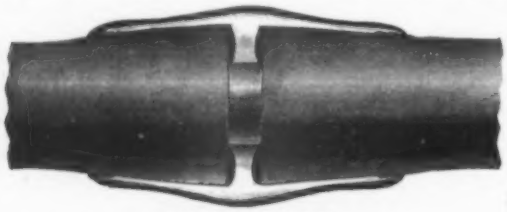
* * *

THE KEMPSHALL HOSE-MENDER.

A NEW hose-mender that is so simple in its application that a glance will reveal its merits is the Kempshall. It is made of refined malleable iron, and after being applied can neither break nor work loose. In mending hose with this appliance the mender is simply screwed into the hose, the levers are hammered down upon the hose holding it firmly in place, and the repairing is complete. Of course no hose-band is needed, for the bent levers effectively take the place of all bands. Of the two cuts appended the smaller shows the mender itself, and the larger the mender after being applied to unite two pieces of hose. Manufactured by The E. Kempshall Co., New Britain, Conn.



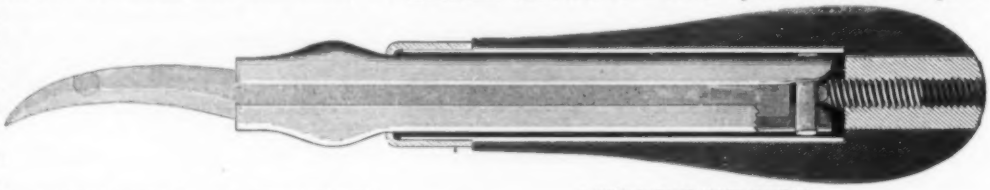
THE KEMPSHALL MENDER.



THE MENDER APPLIED.

A NEW PATENT HANDLE.

CUTTERS of rubber, whether at work on boots and shoes, mechanical goods, clothing, or sundries, need the best of knives. As a measure of convenience and economy, they usually have the blade and the handle so separable that they can throw away the former when it is worn out and put a new one in its place.



A NEW PATENT KNIFE-HANDLE.

The old-fashioned handles had keys for tightening the jaws about the blade, and that key was continually becoming misplaced and lost, and was the cause of endless trouble. The handle shown in the illustration is made especially for rubber work. The jaws are of steel, and, no matter what blade they grasp, are always parallel. The handle is made of rosewood and lined with brass. A simple turning of the ferrule tightens the jaws about the blade. The handle, being so simple, is probably the best and lowest priced on the market. Manufactured by the Sewing Machine Supplies Co., No. 185 Summer street, Boston.

* * *

TILLINGHAST PNEUMATIC TIRE.

THE Tillinghast pneumatic tire for 1893, shown in the accompanying engraving, is adapted for use on bicycles, sulkies, and road-vehicles, and is made in weights for bicycle use ranging from three to five pounds per pair. The cut shows also the positive "shut-off" (valve) which is a prominent feature in the construction of this tire. The strength of the tire is not in a stiff wrapping of canvas, but in an especially strong and pliable tube that allows the tire to flex and give as easily as pure rubber alone, and forms an endless and seamless protection. This tube is braided with an "open mesh" so that the rubber composing the inner and outer tubes pass through and unite, entirely separating the strands and effectually stopping all internal chafing; and the strands hold the compound tube in one mass like hair in mortar or plaster. The manufacturers

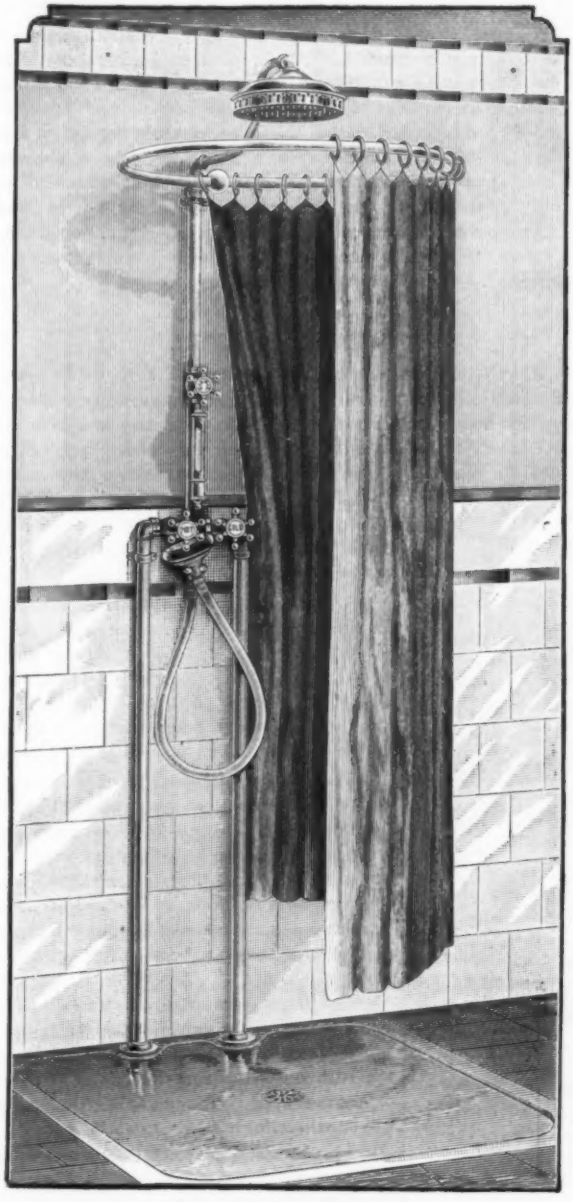
TILLINGHAST TIRE AND POSITIVE "SHUT-OFF."

object to the separate inner tube tire, on account of the internal chafing of the several separately-formed parts and the necessity of removing the same from the wheel for repair. The valve is in the pump and there is a simple "shut-off" in the tire which is positive, cannot leak, and cannot get out of order. Manufactured by the Tillinghast Pneumatic Tire Co., Providence, R. I.

* * *

A BATH CURTAINED BY RUBBER.

THE shower-bath is essentially a luxury of civilization. Each year increases the number of business men who keep themselves "in training." To this end they may or may not have a home



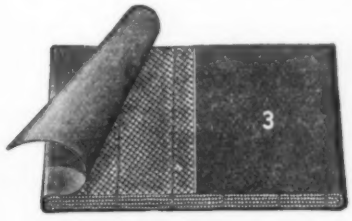
A BATH CURTAINED BY RUBBER.

gymnasium, but they must have the regular exercise, the rub down and the shower-bath. The last-named accessory to "condition" is a troublesome thing in the home. In the gymnasium or the club-house there is ample accommodation for it, but much as they appreciate its usefulness few owners of modern houses possess one in connection with their bath-room. Realizing that every bath should have this accessory, a prominent house manufacturing high-grade sanitary and plumbing specialties has introduced the Madeline shower-bath. This is simply an ordinary shower placed over the tub, but so arranged that the bather is encircled by a rubber curtain which keeps the flying spray within proper bounds. The rubber is coated upon fine cloth and is in any color desired. A large business is already done in supplying these baths to the trade, and there is no doubt but they solve the problem of an elegant, simple, practical shower that can be made a part of any bath-room at a nominal cost. Made by the Standard Manufacturing Co., Pittsburgh, Pa.

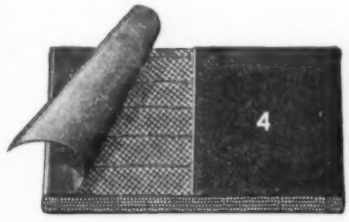
* * *

THE CERES THRESHER-BELT.

A BELT to suit the thresher trade must be as strong as the strongest sewed cotton belt, and as free from stitch as the best rubber belt. The Ceres is a belt designed to exactly fulfill these conditions. The duck is of the best, it is coated with a high-grade rubber compound and sewed. A feature of this sewing is the stitch known as the cross-stitch, and to be found in no other make of belting. By this method of sewing a belt, the thread appears running longitudinally on one side of the belt and at right angles to it on the other side. The two cuts of the belt with the covers lifted to show the stitches will make this plain. The principles of the cross-stitch belt have been already explained in THE INDIA RUBBER WORLD, but this is the first instance of its application to harvester-belts. Manufactured by the Boston Woven Hose and Rubber Co., Boston.



CERES THRESHER-BELT.—FIG. 1.



CERES THRESHER-BELT.—FIG. 2.

* * *

A RUBBER BICYCLE HORN.

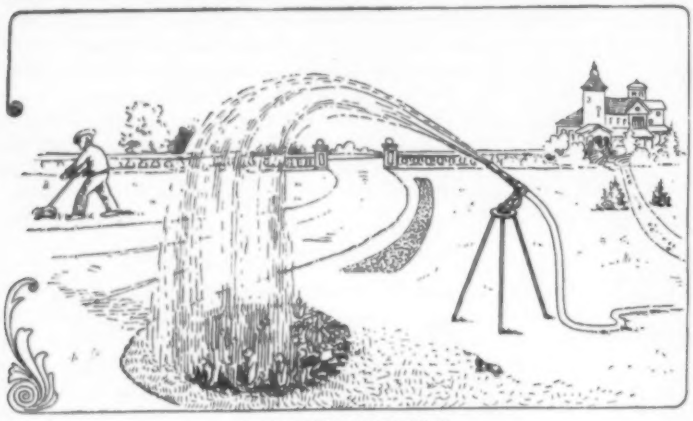
A NEW and convenient article which is being used quite largely by bicycle-riders is the bicycle horn shown in the accompanying illustration. It is used in place of the bell which has heretofore been the only article of warning carried on a bicycle.

A RUBBER BICYCLE HORN.

One advantage which the horn possesses is that it is cheaper in price, a fact which has added to the demand for it. The manufacturers are the Elastic Tip Co., who make a large variety of rubber goods and specialties. Their principal address is No. 370 Atlantic avenue, Boston.

PRESCOTT'S HOSE-HOLDER.

HOLDING the hose for sprinkling a lawn is wearisome work, and propping the nozzle up on a wheelbarrow is unsatisfactory, for even if it works for a time there is no certainty of its staying right, and if it gets away the force of the water spoils the turf or plows holes in the flower-bed. These being the facts, Yankee



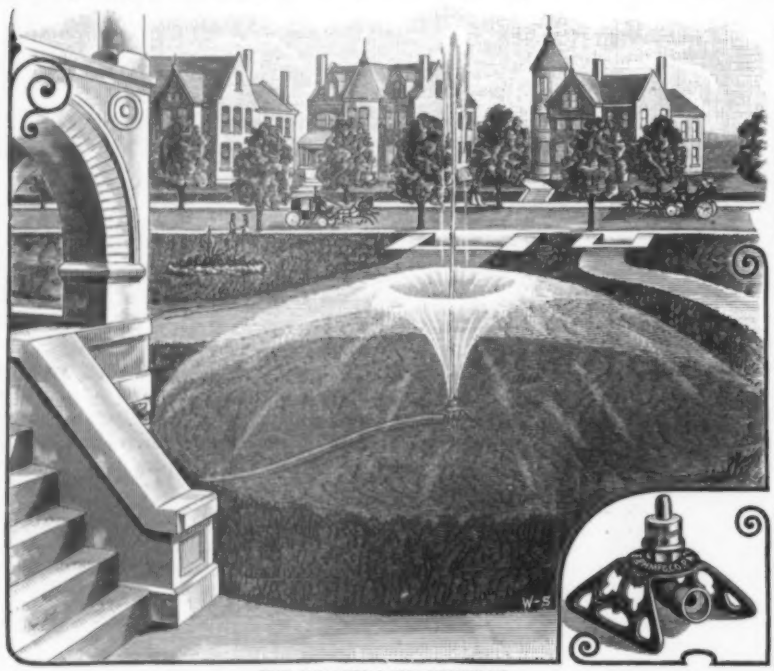
PRESCOTT'S HOSE-HOLDER.

ingenuity has constructed the hose-holder shown in the accompanying illustration. It is made entirely of metal, and it is light, strong, and convenient. It will stand on turf or on a concrete walk. By turning a thumb-screw it points the nozzle in any direction and at any elevation. Manufactured by Prescott Brothers, No. 62 Cornhill, Boston.

* * *

THE JAPANESE LAWN-SPRINKLER.

So much has been said about lawn-sprinklers and there is such a variety of styles that a detailed description of anything in that line is almost superfluous. Especially is this true when an illustration tells the whole story. For the New Japanese lawn-sprinkler here shown the description will be brief, because it touches only the unique points, and passes over the general excellences that all of the better-class sprinklers possess. It is adjustable to any pressure, and as it has no revolving parts is not likely easily to get out of order. It can be moved about the lawn without turning off the water. The spray is regulated by a cup and disk and will pass all gritty substances freely, and there can be no clogging of small holes. The spray may be changed from a fine mist to a shower of large drops. For a low pressure it is as effective as at a high. Manufactured by Ette & Henger Manufacturing Co., St. Louis, Mo.



THE JAPANESE LAWN-SPRINKLER.

* * *

INDIA-RUBBER CURTAINS.

THE firm of Schnauder & Schlegl, of Chemnitz, are producing curtains made of India-rubber. The substance consists of 75 per cent. of India-rubber, 5 per cent. of wool dust, 5 per cent. of pulverized fruit stones, 10 per cent of bleached amber varnish, and 5 per cent. of bleached leather waste, to which, if necessary, some infusorial earth may be added. The whole is worked up with bisulphid of carbon into a thick mass, and then rolled out into thin leaves, which can be decorated with all sorts of patterns. Several leaves are combined to form a curtain. The process of manufacture is patented.—*Manufacturer and Builder.*

* * *

MINOR MENTION.

A FENDER for electric cars which is likely to be widely adopted consists of strong spring wires supporting a piece of rubber hose. The hose when let down to the pavement rolls over and over, and it is said that with this fender it is impossible for one to get beneath the wheels, no matter how rapidly the cars may be moving.

—An electrical carriage with large pneumatic tires is now in use in Chicago. Its motive power is a primary battery.

—A rubber stud for floors and stairs has been invented by an Englishman. It consists of a small iron plate, with a nail projecting from the under surface, around which rubber is molded. A blow of the hammer fixes it in place, the advantage being that when worn it can be easily removed and replaced by others.

—The use of surgeon's aprons made of rubber is becoming more common. They are antimony cured, fitted with pockets, and some of them reach from head to feet in front and back. Rubber is better than linen or other sorts of cloth, as it is not an absorbent, and washes off readily, and in cholera an article of this sort is absolutely indispensable.

—The latest idea in fire-protection is the asbestos suit. It is made in two parts which adjust themselves to the form of the body, and with which the surprised guest at a hotel or in other such contingencies can safely pass where otherwise it would be fatal to go.

—The National India Rubber Co. are making a rubber mat for the Schiller theater, in Chicago, fifty-seven feet in circumference.

—A sewing-machine needle especially constructed for work on rubber fabrics is a specialty of the Sewing Machine Supplies Co., No. 105 Summer street, Boston.

THE PARA RUBBER MOVEMENT.

IN the tables which follow are embodied imformation compiled by leading rubber-importing houses at Pará, including the shipments from Manáos, whether direct or otherwise. Careful scrutiny of the totals may reveal some discrepancies, which are due to the fact that the same use of fractions in converting "kilograms" to "pounds" has not been made in every calculation. The figures approximate closely to correctness, however.

EXPORTS BY FIRMS.

EXPORTERS.	United States.	Europe.	Total.
Pusinelli, Prüsse & Co.	4,574,882	5,384,062	9,958,944
La Rocque da Costa & Co.	6,474,860	1,376,870	7,851,729
Norton & Co.	7,674,499	231,132	7,905,631
Singlehurst, Brocklehurst & Co	1,202,425	1,403,052	2,605,477
Rud. Zietz	171,607	2,181,638	2,353,245
R. F. Sears & Co.	1,516,845	302,237	1,819,082
J. H. Andresen	634,480	559,475	1,193,955
Denis Crouan & Co.		1,161,263	1,161,263
A. Berneaud & Co.	408,364	434,929	843,293
Freitas Sobrinho & Co.	319,491	314,943	634,434
B. A. Antunes & Co	347,349	228,439	575,788
Banco de Manáos	455,459	42,647	498,106
Marius & Levy	116,927	202,915	319,842
H. de la Baume	374,264	8,749	383,013
Luiz Schill & Sobrinho	95,500	192,334	287,834
Silva Santos & Co.	176,924	137,126	314,050
Kahn Polack & Co.	17,318	233,701	251,019
A. de Freitas & Co.		271,794	271,794
Araujo Rozas & Irmao	200,470	81,851	282,321
Samuel & Co.	23,892	122,958	146,850
Sundry Small Shippers	359,624	567,082	926,706
From Serpa	4,349	12,373	16,720
Total, pounds	25,149,429	15,570,770	40,720,199

EXPORTS BY GRADES.

QUALITIES.	United States.	Europe.	Total.
Fine	13,711,959	9,928,265	23,640,224
Entrefine	2,917,538	1,593,234	4,500,772
Sernamby	6,472,976	2,113,706	8,586,682
Caucho	2,046,715	934,417	2,981,132
Mangabeira	239	147	386
Total, pounds	25,149,427	14,569,769	39,709,196

SIX MONTHS AT PARÁ.

[*From Our Own Correspondent.*]

		KILOGRAMS.
Stock on hand June 30, 1892—		260,000
Entered Since:		
During July	820,000	
During August	1,070,000	
During September	1,520,000	
During October	1,670,000	
During November	1,850,000	
During December	2,680,000	9,610,000
Total		9,870,000

SHIPMENTS.

Months.	United States.	England.	France.	
July	380,089	134,189	16,910	
August	725,864	368,524	57,374	
September	693,451	659,257	86,141	
October	552,836	575,532	155,369	
November	1,444,324	850,050	115,526	
December	1,680,389	572,726	25,769	
Total	5,476,953	3,160,278	457,089	9,094,320
Balance in Stock December, 31				775,680

TRADE AND PERSONAL NOTES.

THE Mechanical Fabric Co. (Providence, R. I.) have recently added to their plant a building for the manufacture of rubber thread. They intend to make only a first-class article and will make it in but one color, the black. Although this concern are large users of India-rubber and produce a great many first-class rubber goods, they are not perhaps as widely known as some others who have smaller plants, for the reason that they make specialties entirely and their whole output being taken by one or two large concerns. For example, the rubber-coated cloth for card clothing, which they manufacture in large quantities, is sold to the American Card Clothing Co., their only customers in this line. During the past year they have been extensively engaged in making pneumatic tires, confining themselves exclusively to the Tillinghast tire and the American Dunlop tire. Their plant covers about two acres of floor space. They have two Armington-Simms engines of 400 horse-power and are fitted with the usual complement of rubber machinery, including washers, grinders, and calenders, all of the best make. The factories are of brick and the plant, complete, is one of the best that the rubber trade possesses. Their methods of manufacture are akin to those of Messrs. David Moseley & Sons, of England. Young Mr. Moseley is a resident of Providence and takes an active interest in the business.

—The Essex Rubber Co. (Newark, N. J.) have removed from No. 297 Railroad avenue to the Nassau Works, on Sheffield street, where they have put in additional machinery and have much more room. During 1892 they ran their plant fifteen hours a day and they already have orders on hand that will keep them busy 300 days during the coming year. President Yatman and his associates are to be congratulated on so signal and rapid a success.

—The new factory of the Boston Woven Hose and Rubber Co., at Cambridgeport, Mass., was delayed somewhat on account of the cold weather, but a large force of men are at work again and it will very soon be completed.

—The Metal Last and Tree Co. (Boston) have moved from No. 105 Summer street to No. 88 Lincoln street. Mr. C. F. Parker, the manager, is still at work on aluminum boot-trees, and has numbers of pairs in factories that have already announced their intention of placing orders with them.

—Mr. Robert Hotchkiss, the new superintendent of the Granby (Ont.) Rubber Co., is settled in his new position and pleased with his surroundings. Mr. Henry Burr, the former superintendent, is in ill health and will probably soon return to New England.

—The hose-reel salesmen have again started out for Eastern trade, and larger orders have been booked this year than ever before.

—The firm of Prescott Brothers, Boston, consists now of John W. Prescott and William Keyes. The junior partner was formerly with the India Rubber Glove Co.

—The Goodyear Rubber Co.'s building in Washington city was injured by a fire on the night of January 21, which started in the paint establishment of Francis Miller in the adjoining building, Nos. 305-307 Ninth street. The rubber company's loss is reported at $10,000.

—The store of the Metropolitan Rubber Co. in Boston has been sold to Joseph Cleve and F. L. Crim. They will carry the Metropolitan goods, and sell everything else in the line of rubber goods.

—The Emerson Rubber Works, Reading, Mass., are about to go into the manufacture of ladies' and gentlemen's mackintoshes.

—Mr. Quincy, of the Candee Rubber Co. (Boston), will hereafter write his name in full—George Hatch Quincy—because there is another G. H. Quincy to whom the post-office sometimes delivers his mail.

—The "Alice" mill of the Woonsocket Rubber Co. was the scene of an accident just before the closing of work on the afternoon of January 19, which at one time caused great fright among the many hundreds of operatives engaged in the building. Through the presence of mind of the foremen, however, the excitement soon subsided, and the building was emptied without any panic. The accident consisted in the breaking of three ponderous cast-iron gears attached to one of the two 750-horse-power Harris-Corliss engines, and the consequent bursting of the 20 ton fly-wheel. The center gear was 11 feet in diameter, weighing 11 tons, and the two counter-gears weighed 8 tons each and measured 8 feet in diameter. In one of the spokes in the gear which first broke was a fracture showing signs of being an old break. Fortunately no person was injured, and little damage was done either to the engines or the building. The disaster will cause little interruption to the business of the company, as one of the engines is still available, and the company's plant at Millville will supply the deficiency during the progress of repairs. The gears were made by Robert Poole & Sons, Baltimore, Md., who have received orders to replace the broken wheels with new ones of the same kind. The damage has been estimated at about $15,000. The *Engineering Record* (New York) considered the event of sufficient importance to justify a considerable report of the details, with illustrations of the machinery after the break.

—Town & Brother, Philadelphia, have given up their Eighth-street retail store, and have moved the stock to their main store on Market street.

—The improvements recently commenced by Mr. A. R. Underdown, proprietor of the well-known oiled-clothing and rubber house, Philadelphia, are nearly completed, and when finished Mr. Underdown will have a well-appointed house for a more complete line than he has heretofore been able to carry.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) have received the contract for rebuilding the tube-mill of Curtis & Co., at Cohoes, N. Y., lately destroyed by fire. The new plant will be fire-proof, constructed entirely of iron and brick, no woodwork being used. The building will be 132 feet wide by 131 feet long, with a wing at one side 20 feet wide by 74 feet long.

—William Read & Sons, bicycle-manufacturers in Boston, received on January 13 by the steamer *Cambroman*, from Liverpool, five cases of rubber-cement.

—The employés of the Apsley Rubber Co. (Hudson, Mass.) were given a complimentary banquet and ball on the evening of February 7 by the president, Mr. L. D. Apsley, the Congressman-elect from that district. The town hall and the armory were devoted to the event, and the Hudson Brass Band furnished music. The grand march was headed by Mr. and Mrs. Apsley, fully 200 couples joining in the march. Mr. Apsley was presented by his employés with a gold-headed cane and made some remarks upon the proper relations between employer and employé. After supper dancing continued until a late hour. Such events are believed in Hudson to be most beneficial to the town, as insuring a pleasant relation between the working-people and their employers.

—The Eastern Rubber Manufacturing Co. (Trenton, N. J.), the incorporation of which was reported in the last issue of this journal, have opened New York offices in the Potter building, No. 38 Park row. They will be in charge of the manager of the company's sales department, Julius Kahn, formerly with the New York Belting and Packing Co.

—The Excelsior Cement Co. (Milford, Mass.) have put in a three-ton rubber-washing machine, made by C. H. Farrington, of the same town. It is said to be the heaviest machine made at Milford for years.

—The Toledo (Ohio) Rubber Co. have displayed in their windows rubber in the various processes of manufacture, making a display well worthy of study. There is also crude rubber direct from Africa, Central America, and South America. The display involves an outlay of $1000.

—William H. Sheldon, in charge of the druggists'-sundries department of the Columbia Rubber Works Co. (New York), has been with that company for six years. The large line and variety of goods that compose a full assortment of surgical and druggists' sundries make a special calling for men of ability and experience. The stock carried runs into tens of thousands of dollars, and each article has its peculiar points, a knowledge of which is essential to the person handling the goods. To be well posted on what one is endeavoring to sell is half the battle.

—The Indianapolis (Ind.) Board of Public Safety contracted recently for 2000 feet of fire-hose at 65 cents per foot. Six companies were represented in the bids at prices ranging from 65 cents to $1.

—W. B. Capers, J. F. Dickinson, and Samuel Meyer, of Atlanta, Ga., through their attorney, have filed a petition for a charter for the Atlanta Rubber Co., for the buying and selling of all kinds of rubber goods.

—Mr. Addison F. Roberts, Mr. Nathan Michaels and Mr. McQuatty, salesmen for the Commonwealth Rubber Co. (New York), have started out on the road with new samples, and are already booking large orders.

—W. H. Adams, formerly with the Gutta-percha and Rubber Manufacturing Co. as salesman for fire hose, has become connected with the Boston Woven-Hose and Rubber Co.

—Mr. Montgomery and Mr. Staples, of the American Steam Packing Co. (Boston), are both in the West taking orders for their specialties.

—Prescott Brothers, of Boston, are so well satisfied with what they did last year with the Hudson hose-mender that they are this year making a leader of it and booking very large orders for it.

—Samuel F. Randolph, president of the Commonwealth Rubber Co., was a recent visitor to Boston in the interests of his concern.

—The Millard Manufacturing Co., Sprague street, Providence, R. I., owned by Atwood & Nichols, are doing quite a large business in metals for the druggists'-sundries trade. A new firm has been started in Providence with a name similar to the above,—The Millard Bros. Manufacturing Co.,—which will manufacture atomizers and specialties. It consists of the two brothers who founded and formerly owned the Millard Manufacturing Co.

—Frank E. Hall, Boston, has resigned as manager of the Consolidated Fastener Co. and will go to Chicago to take charge of a large machinery exhibit, starting at once.

—E. F. McArdle, of the Boston Belting Co., has returned from a trip through Connecticut.

—C. J. Bailey & Co. (Boston), who own the patents for Bailey's protection rubber, have retailed more than 200 cases of them in their store alone this season.

—Mr. E. E. Leech, formerly manager of the Metropolitan Rubber Co., Summer street, Boston, has opened a store of his own on Boylston street under the name of E. E. Leech & Co. He will carry a full line of mackintoshes and fine rubber goods. The store is very handsomely fitted with a department for showing and fitting mackintoshes and another devoted to rubber footwear. He has two handsome show-windows which will be taken care of by a professional window-dresser.

—The Home Rubber Co. (Trenton, N. J.) have put an electric-lighting plant into their, mill using 250 lamps. They have adopted the Perret system of lighting.

—The Tillinghast Pneumatic Tire Co. (Providence, R. I.) fitted out a road-wagon last season that ran 2000 miles over a variety of New England roads, in hot and cold weather, without suffering a puncture or in any way giving out.

—John H. Parker, (Boston) the Arctic Sock man, is marketing a new sock which is to go to better class of trade, and will retail for fifty cents.

—The Lambertville Rubber Works and the Goodyear Rubber Co. at Middletown, Conn., make no tennis-goods, which will answer an inquiry made by a number of people in the trade.

—P. L. Ryder, No. 370 Main street, Worcester, Mass., has enlarged his store and doubled the stock of rubber goods that he carries. His business in 1892 was twice as large as that of the year previous.

—By the bursting of a steam-pipe in the engine-room of the Chicago Rubber Co., on the morning of January 18, two employés were seriously injured, one of them perhaps fatally.

—Gaibrath & McVickar, manufacturers of waterproofing goods in Philadelphia, have made an assignment to H. S. Nichols. They have been in business since July, 1891.

—Angier & Kennard, No. 519 Monadnock building, Chicago, have obtained the agency for the goods of the Butler Hard Rubber Co. and the New York Rubber Co.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) will build the new machine-shop for S. F. Hodge & Co., of Detroit, Mich. The building will be 150 feet long and of modern type, the central portion being 40 feet in width, controlled by a traveling-crane of 20 tons capacity, with a wing on each side 22 feet in width, the wings being two stories high. When completed it will be one of the best machine-shops in the northwest.

—The American Wringer Co. at their annual meeting at Providence, R. I., on January 24, elected the following officers: Joseph Banigan, president; George Reuter, Jr., treasurer and manager; and W. S. Ballou, secretary.

—Among the New York business firms that have signed a petition for the repeal by Congress of the Sherman silver bill are the New York Belting and Packing Co., the Gutta-Percha and Rubber Manufacturing Co., the Goodyear India-Rubber Glove Manufacturing Co., the India-Rubber Comb Co., and W. R. Grace & Co.

—The Cambridge (Mass.) *Tribune*, referring to the purchase in that city of a manufacturing site by the Charles River Rubber Co., organized with a capital of $500,000 in $10 shares, mentions that Thomas C. Scottron has taken the Eastern agency of the company, and that a limited amount of stock is to be offered at $5 per share.

—The directors of the New Brunswick Rubber Co. have placed upon their minutes a tribute to their retiring secretary and treasurer, Mr. K. T. B. Spader, whose connection with the firm dates from its organization, forty years ago. Mr. Spader is now seventy years of age. William Sanford, of New York, has been elected to the positions vacated by his resignation. William V. Spader, son of the retiring secretary, has resigned as bookkeeper for the company.

BALTIMORE ITEMS.

SINCE the first of the year some important changes have taken place in the rubber trade in Baltimore. L. C. Zerckel & Brother, so well known as "Tower's Oiled Clothing Agency," and for the last ten years located on Canton avenue, have dissolved, and Mr. L. C. Zerckel will continue the business at the old stand, while his brother, Mr. G. A. Zerckel, has formed a copartnership under the firm name of G. A. Zerckel & Co. They are conveniently located at No. 17 South Charles street, where they will do a general rubber and fisherman's-outfit business.

—Eugene McDonnell, George H. Payne, and Thomas P. Fogarty have formed a partnership and will conduct a jobbing rubber business, in which rubber clothing, mackintoshes, and boots and shoes will be especially featured. Mr. McDonnell has been for many years the Baltimore representative for the great cotton firm of Ralli Brothers. Messrs. Payne and Fogarty will be well remembered as having been travelers for Messrs. Boyd, Jones & Co. Mr. P. C. Johns, also formerly with Boyd, Jones & Co., is with the new concern and will travel for them.

—The Patapsco Rubber Co. are new beginners in the Monumental city and will occupy the well-known stand of Messrs. Janney & Congdon, No. 12 North Charles street, whom they recently bought out. The new concern is a corporation under the laws of New Jersey, and is under the management of Mr. T. N. Conrad, all of Camden, N. J. Mr. L. C. Dietsch, well known as having been with Janney & Congdon since their start, is secretary and treasurer. Manager Conrad has had the store entirely overhauled and for the last two weeks carpenters and painters have been making many changes in the appearance of the building.

* * *

INDIVIDUAL MENTION.

MR. ARTHUR W. CLAPP, manager and treasurer of the E. H. Clapp Rubber Co. (Boston), is enjoying a two-months' sojourn in Bermuda.

—Mr. Courtenay De Kalb, who is now in Boston, has furnished *Harper's Weekly* with a valuable and interesting illustrated paper on "The Amazonian Rubber Country," which was published in the issue of that journal of January 7.

—Mr. Charles R. Flint is one of the seven New Yorkers on the reception committee appointed by Director-General Davis, of the World's Columbian Exposition, to welcome to America distinguished foreign guests *en route* to the Fair.

—Mr. G. Louis Richards, the advertising-man and Boston selling-agent of the Boston Rubber Shoe Co., has been elected presiding officer of the Common Council of Malden, Mass. He has been a member of the Council for two years past.

—Mr. R. Josselyn, of the Goodyear Co. (School street, Boston), is the owner of quite a tract of phosphate land in Florida, which is said to be growing in value every day.

—The family of Mr. N. C. Mitchell, treasurer of the Rubber Reclaiming Co. (New York) are wintering at Bermuda.

—Mr. A. Randolph, manager of the Stoughton Rubber Co. (Boston), has resigned his position and Mr. David Marr will hereafter be active manager.

—Mr. Sutton, of the firm of Parker, Stearns & Sutton (New York) is having a very fine yacht built.

—Mr. A. N. Loring, of the Columbia Rubber Co. (Boston), is still at the Nervine Retreat, and his condition is reported as unchanged.

—Mr. Juan M. Ceballos, a member of the rubber-importing trade, was a member of the reception committee on the occasion of the testimonial dinner tendered to Dr. William T. Jenkins, Health Officer of the port of New York, on the evening of February 11.

RUBBER SALESMEN ON AND OFF THE ROAD.

THERE is given on this page an excellent likeness of Mr. Silas H. Jenkins, many years with the Hodgman Rubber Co. (New York), who has just gone to Chicago as their permanent representative in the West. Mr. Jenkins is the son of a cotton-planter of Mississippi, and was born near the town of Liberty in 1862, so that he is yet a young man in every sense of the word, though he has been for years taken for a much older man than he really is. At the age of sixteen he went to New Orleans, where he commenced his career as a clerk. During this time he was a student in the evening class of Soulé's Commercial College, and while here engaged in his studies bettered his position by connecting himself with the New Orleans Lightning Rod Co. Within six months he was promoted to the position of traveling salesman, and covered a territory embracing the States of Louisiana, Mississippi, Alabama, Tennessee, and Florida. At this time Mr. Jenkins was

SILAS H. JENKINS.

one of the youngest commercial men on the road. The New Orleans Lightning Rod Co. had a good many travelers and in 1882 they offered a handsome gold medal as a reward for the best sales of that season, ending with November 1. Mr. Jenkins was twenty years old on the 5th day of that month, and to make a long story short, he got the medal. Later Mr. Jenkins was sent to Mexico to represent his company's interest and he spent a year with our neighbors across the Rio Grande. Returning to the Cresent City in December, 1883, Mr. Jenkins married a daughter of Dr. F. Wilhoft, the inventor of a well-known rubber syringe. About this time Mr. Jenkins moved to New York and became interested with his father-in-law in experiments for the manufacture of non-blooming rubber, but owing to the Doctor's failing health the project was temporarily abandoned. It was early in 1885 that he entered the employ of the Hodgman Rubber Co. as a Southern and Southwestern representative, and his success since then with the Hodgman line of goods has been most gratifying to himself and his friends, and most satisfactory to his employers. In fact, Mr. Jenkins's advancement was of the most rapid kind, and it was but a short time before he had built up a very large business with the very best trade throughout the South. His handling of the famous Hodgman pure-gum fancy-stripe coat, in a section of the country where all salesmen know it is very difficult to market the highest-class rubber clothing, was a surprise to his competitors in the field. Mr. Jenkins is one of the most popular salesmen on the road and his friends throughout the South are legion. He is also well known to the buyers visiting in New York, and to the Southern colony who, like himself, have made their home in the Metropolis. Being a great worker, and with a quiet address, and excellent judgment as a salesman, and a keen insight into human nature, Mr. Jenkins may be expected to make his mark in the great West.

* * *

SHORT TRIPS.

THE maiden trip made through the Sunny South by Mr. W. G. Bergen for his new employers, The Home Rubber Co. (Trenton), was a gratifying success to Mr. Bergen, who returned home well pleased with the country and its people, and with an order-book filled with orders for mechanical rubber goods.

—The Buffalo Rubber Co. have secured the services of Mr. W. P. Cowell, late of S. Preiss & Sons (Baltimore). Mr. Cowell will confine his territory to Ohio and Western Pennsylvania.

—Reports have it that the Colchester Rubber Co. have taken on Mr. Charles Brown as traveler, he having severed his connection with the firm of Brown & Adams.

—Mr. William E. Wysham, Southern representative of the Hodgman Rubber Co. (New York), is at home from a trip through Ohio and Indiana,—a new territory for Mr. Wysham. He reports trade fairly active.

—Mr. William T. Moseley, of the late firm of Moseley & Bohmer (Richmond), came North to dispose of some of the goods of the old firm. Mr. Moseley found Baltimore the best market, where he placed considerable stock.

—Manager T. N. Conrad, of the Patapsco Rubber Co. (Baltimore), paid a flying visit to New York last week, on business connected with this new corporation. Mr. Conrad was congratulated by his many friends in the mechanical rubber line, and on his return to Baltimore was kept busy for two days receiving calls from the belting- and hose-men, who are out in force now.

—Mr. Charles F. Hamilton, the well-known Western agent of the Apsley Rubber Co., is reported as having had an unusually large trade for spring goods in the West.

—Mr. Harry Preiss, with a full line of the Chesapeake Rubber Co.'s mackintoshes, is on his annual pilgrimage to the Pacific slope, and as usual is holding up his end in great shape.

—Mr. James D. Ferguson, of Goodyear's India Rubber Glove Manufacturing Co. (New York), is wending his way homeward after an extended trip West.

—The rubber-shoe men have had rather an easy time of it recently, as orders are very numerous and the effort is on the part of the mills to fill them. Some styles of shoes have had a run which has been a surprise even to those who looked for a very large demand. Especially is thist he case in the storm-slipper.

—Mr. Hudson Dickerman has accepted a position with the Erie Rubber Co. as salesman traveling through New York and Pennsylvania.

REVIEW OF THE RUBBER MARKETS.

DURING the past thirty days the rubber market has been influenced by extraordinary conditions. The winter has been so far the most severe experienced in many years in every particular which would influence the consumption of rubber clothing and boots and shoes. We have experienced at the same time in the United States an industrial situation calling for heavy lines of mechanical goods, not to mention the rapid growth of the bicycle business, in which the present is the busy season of the year. Contrasted with this large demand for crude rubber is the fact that supplies of that material have been below the average in amount. There have been unexpectedly small receipts of rubber from the upper waters of the Amazon. For the seven months of the present crop-year the receipts at Pará have been less than for the corresponding seven months of last year by 2000 tons. The receipts for January were estimated at 3000 tons, while only 1500 tons were received. During the same month in 1892 the receipts were 3035 tons. It is idle to claim that there has been absolutely a short crop, after what has been learned of the almost limitless extent of the rubber forests. It is more probable that supplies have been delayed by an unusually state of the upper Amazon water system, and that rubber supplies must come forward in larger volume with the rise of water.

Naturally there could be but one result from this unexpected combination of circumstances,—a heavy advance in the price of crude rubber. Within a comparatively short time there has been a rise from 62 cents to 79 cents for new Islands on arrival, and purchases seem to have been made eagerly at this advance. It should be borne in mind that in a good crop year prices for fine Pará have been forced up to $1.25 per pound by manipulation. Should speculation follow the present conditions manipulators would not find the manufacturers carrying heavy stocks. At present all hands appear to be moving with one accord to stem the rise in prices. The stock of fine grades in the whole world is probably 2000 tons less than it was a year ago. It is reported that there is but one operator in New York who has to-day large stocks in hand, and he is never without good-sized stocks.

The receipts of Centrals have been small and all have been readily sold "to arrive," reflecting an excellent demand. The demand for Africans, especially the better grades, is excellent, all being sold "to arrive." A feature in Africans is the demand for Flakes at the advance in prices.

The world's visible supply of Pará rubber on January 31, compared with a date one month before, and one year before, was as follows, amounts being stated in tons:

	January 31, 1892.	January 31, 1893.	December 31, 1892.
United States	748	1,009	835
Liverpool	1,074	587	654
Pará	1,605	645	780
Afloat	1,530	874	1,440
Totals	5,002	3,115	3,709

The statement for January 31, 1892, included 190 tons of Caucho. It will be seen that the falling off in the amount afloat is very marked. For the United States there were afloat December 31, 1892, 920 tons from Pará, while on January 31, 1893, there were 565 tons, or 38 per cent. less.

The receipts at Pará for the seven months of the crop year ending January 31, 1893, were 11,130 tons, and for the same time in 1891-92 they were 13,180 tons.

The statistical position of Pará rubber in New York is thus reported for January, 1893, as compared with the same month in preceding years:

Stock of Pará here,	December 31, 1892, about	1,560,000	pounds.
Receipts during	January, "	3,370,000	pounds.
Deliveries during	January, "	3,030,000	pounds.
Stock	January 31, 1893, "	1,900,000	pounds.
Stock	January 31, 1892, "	1,750,000	pounds.
Stock	January 31, 1891, "	1,150,000	pounds.

PRICES FOR JANUARY.

	1893.		1892.		1891.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First	66	47½	63	43	77	55
Highest	78	55	65	45	87	61
Lowest	66	47½	63	43	75	52
Last	78	55	63½	44	87	61

The latest quotations in the New York market are:

Pará, fine, new	77@79	Sierra Leone	24@40
Pará, fine, old	81@83	Benguela	52@53
Pará, coarse, new	54@59	Congo Ball	36@42
Pará, coarse, old	57@62	Small Ball	33@36
Caucho (Peruvian) strip	52@53	Flake, Lump and Ord	31@33
Caucho (Peruvian) ball	60@62	Mozambique, ed ball	——
Mangabeira, sheet	36@40	Mozambique, white ball	——
Esmeralda, sausage	52@53	Madagascar, pinky	58@64
Guayaquil, strip	40@42	Madagascar, black	42@43
Nicaragua, scrap	53@54	Borneo	28@45
Nicaragua, sheet	51@52	Gutta-percha, fine grade	1.75
Guatemala, sheet	38@43	Gutta-percha, medium	1.15
Thimbles	42@43	Gutta-percha, hard white	1.10
Tongues	35@40	Gutta-percha, lowersorts	nominal.

A New York broker thus sums up the market: "The year opened with fine Islands Pará at 66c. and coarse at 47c. and gradually worked up under small entries at Pará and fears of large shortage in crop to 79c. and 56c. paid. During the last few days entries at Pará have increased somewhat and with lack of demand here to sustain prices market has declined to 77c. and 54c. The shortage in crop according to best authorities cannot be made up and a few days of good demand will turn the market upward again."

In regard to the financial situation Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper, New York, advise us as follows:

"A noticeable feature of our money market in January was the great increase in bank reserves, due mainly to phenomenal influx of currency from the interior. Resulting from this, low rates prevailed most of the month, for prime rubber paper,—say 5 to 5½ per cent. for double-name, four to six months to run, and 6 per cent. for single-name of like maturity. This marked increase in currency quite offset the depletion of gold arising from the export demand for Europe, several millions having been taken. The outflow of gold will probably continue in February, unless cotton and grain calls are obtainable."

* * *

THE RUBBER-GOODS TRADE.

THE market for rubber goods compares very favorably with any season in the past. No trace of disturbance growing out of the financial situation of the country seems apparent in this industry. Stocks are light, which precludes the possibility of serious trouble in any event. Indeed at present the absence of large stocks is in itself rather a calamity to every one in the trade, for if the advance in crude rubber holds, there can be but one outcome,—higher prices for the product. This subject is already receiving the attention of the manufacturer, and in the boot-and-shoe line, the establishment of prices for the

next season is held in abeyance, awaiting further developments. It is claimed in some quarters that manufacturers are not carrying the usual stocks of rubber and that a demand for higher prices will receive for this reason more prompt attention than as though they had made provision beforehand. An advance in rubber of 35 per cent. is not to be lightly considered if standards are to be maintained.

The boot- and shoe-men are very busy, and it is difficult to keep pace with orders. It seems as though the demand came in streaks, changing from one sort of goods to another in a perplexing way. One month ago it was "arctics," and a cry came for them from everywhere; that passed away, and now it has broken out in "imitation sandals." Every jobber wants them, and all hands seem to have forgotten to make them in any reasonable quantity. The factories should have commenced on their stock of tennis goods in December, but have been so pushed in other directions that they have only started in during this month. It is thought that there will be a discouraging shortage in this line early in the season. Tennis-goods prices are published, the discount being 20 per cent.

In mechanical rubber goods the demand is very good.

* * *

TRADING IN RUBBER STOCKS.

THE daily quotations for the United States Rubber Co.'s stock and the extent of the trading in the New York market since our last report are given in the accompanying table:

DATES.		COMMON. Sales.	High.	Low.	PREFERRED. Sales.	High.	Low.
January	12,	....	...	....	....	....	....
January	13,	250	43½	43½	300	95⅞	95
January	14,	100	43⅝	43½	210	96	95½
January	16,	100	44¾	44¾	135	95⅝	95½
January	17,	700	44¾	43½	410	96¾	96
January	18,	710	43½	42⅝	387	95⅝	95
January	19,	120	42½	42½	100	95	95
January	20,	200	42½	43½	1	95	95
January	21,	150	43⅝	43½	100	95⅞	95⅞
January	23,	255	43¾	43¾	10	96¼	96¼
January	24,	200	44	43⅝	35	95½	94
January	25,	...	...	...	148	95	95
January	26,	300	43¾	43	...	...	...
January	27,	2082	45⅛	43½	100	95	95
January	28,	1230	47¼	45⅝	...	...	...
January	30,	520	46	45	615	96	94⅝
January	31,	932	46½	45	100	95	95
February	1,	506	46½	46	152	97	95⅛
February	2,	100	46	46	276	96⅞	96
February	3,	398	45¾	45	78	96	94¼
February	4,	225	45⅜	45¼	...	...	...
February	6,	710	45	44⅜	152	95	95
February	7,	11	45¾	45¾	10	96	96
February	8,	105	45	45	...	...	...
February	9,	150	44	44	50	96	96
February	10,	680	45	44	...	...	...
February	11,	53	44⅛	44	...	...	...

The limit of fluctuations in this record was 47¼–42⅜ for common and 97–94 prefered. The December fluctuations were 48¼–39 for common and 99–94½ for preferred.

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THE SITUATION IN PARA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Since January 1 the quotations for Island rubber have been gradually climbing upward, while exchange has hovered about the 13¼-pence mark quite closely, having been not lower than 13⅛ and not higher than 13¼. Your readers doubtless understand that this means that one milreis, nominally worth fifty cents of United States money, is so depreciated as to be worth so many pence of English currency, or double that in American cents.

The quotations for Island began on January 2, at 3800 to 2050, by the 17th had reached 4150 to 2400, and to-day are firm at 4500 and 2750.

The following statistical showing covers the movements of rubber from this port for the current month:

Stock all grades, December 31, 1892:

		TONS.
In first hands	150	
In second hands	625	775
Receipts in January		840
Total stock to date		1,615
Shipments to Europe	134	
Shipments to the United States	834	968
Stock remaining		647

There has been but little of the interior product in the market so far, and no quotations for it are attainable, the whole amount now here and disposable being probably less than 50 tons. Since the first there have arrived at Manáos from above, several lots, notably during the second week, the *Belem* from Iquitos, the *Javary* from the Rio Purus, and the *Sarah*, from the Solimoens, bringing about 310 tons, much of it from Peru, of which about 200 tons are said to be for this market. There has also arrived quite a considerable amount, via the Rio Madeira, from Bolivia.

The rubber entering the port of Manáos for the half-year ending December 31, is as follows:

Product of Amazonas:

	TONS.
From Rio Purus	1,229
From Rio Madeira	1,053
From Rio Jurua	804
From Rio Javary	568
From Rio Solimoens	145
From Rio Negro	49
From Rio Jutaly	11
Total	3,859

Product of States outside of Brazil:

From Peru	441
From Bolivia	316
From Venezuela	6
Total	4,622

Thus Manáos seems to be pushing ahead as a factor in the rubber market in this valley. A shipment of bulk rubber, *i. e.*, uncased, in an American schooner (the *Anna R. Bishop*, of Philadelphia, Captain Rulon) is something of an innovation, but looks to be practicable, as there is much saving in cost of cases, and in hauling at home, for the captain can discharge his cargo within two or three miles of the works at Providence, R. I., for which it is destined. It seems feasible, in fact, for some go-ahead firm to establish a line of steamers, built especially for this trade, to ply between this and other ports on the Amazon, and the rubber centers of our home coasts.

There is a general complaint, and in fact a feeling of uneasiness, at the failure to arrive of any considerable amount of stock from the interior; the gatherers there seeming to be, in some previously unheard of manner, enabled to hold on to their product for still higher prices, though there are now some rumors of a movement of a portion of it in this direction.

ARGUS.

Pará, Brazil, January 26, 1893.

[*By Cable.*]

PARA, February 13,—Receipts this month 640 tons and 80 tons Caucho. Quotations: Islands, 4500 reis; Up-river, 5000; Exchange, 13¼d. Afloat for New York: *Justin*, 420 tons; *Advance*, 90 tons; *Cyril*, 280 tons and 10 tons caucho. Afloat for Europe 260 tons and 40 tons caucho.

IMPORTS FROM PARA.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, all quantities being expressed in pounds:

January 14.—By the steamer *Clement*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Totals.
Reimers & Meyer	185,700	72,600	12,200	12,000	282,500
New York Commercial Co.	156,800	32,600	31,600	.....	221,000
Joseph Banigan	129,500	44,200	39,500	5,800	219,000
Boston Rubber Shoe Co.	87,700	29,600	26,700	12,300	156,300
Lawrence, Johnson & Co.	118,100	17,500	18,000	.....	153,600
Hegemyer & Brunn	98,500	13,900	14,400	.....	126,800
Louis Schell (Havre)	24,100	2,700	9,100	12,700	48,600
G. Amsinck & Co	33,000	.....	12,400	.....	45,400
Shipton Green	26,200	1,800	3,300	.....	31,300
Marius & Levy	2,200	.....	17,600	10,400	30,200
To Order (Havre)	9,600	800	6,300	900	17,600
Totals	871,400	215,700	191,100	54,100	1,332,300

January 22.—By the steamer *Basil* from Manáos and Pará:

Lawrence, Johnson & Co.	91,200	15,200	37,600	.....	144,000
Boston Rubber Shoe Co.	63,900	16,400	30,500	900	111,700
Hegemyer & Brunn	43,500	7,800	10,300	.....	61,600
Joseph Banigan	33,400	11,600	10,300	.....	55,300
Reimers & Meyer	32,800	9,700	10,500	.....	53,000
New York Commercial Co.	21,300	2,200	3,400	.....	26,900
To Order (Marius & Levy).	5,200	700	2,600	.....	8,500
Totals	291,300	63,600	105,200	900	461,000

January 25.—By the steamer *Marcia*, from Pará:

New York Commercial Co.	122,400	42,800	43,000	.....	208,200
Reimers & Meyer	50,000	8,600	35,400	.....	94,000
Totals	172,400	51,400	78,400	.....	302,200

January 28.—By the steamer *Hondo*, from Pará:

New York Commercial Co.	28,500	1,100	3,000	.....	32,600
Reimers & Meyer	.....	.....	13,800	.....	13,800
Totals	28,500	1,100	16,800	.....	46,400

February 6.—By the steamer *Paraense*, from Pará:

New York Commercial Co.	93,900	16,400	61,200	2,100	173,600
Shipton Green	82,900	12,300	30,700	5,800	131,700
Lawrence, Johnson & Co.	70,700	11,400	49,400	.....	131,500
Reimers & Meyer	34,600	5,700	70,800	.....	111,100
C. Ahrenfeldt & Son	8,700	.....	29,800	47,100	85,600
Boston Rubber Shoe Co.	39,200	5,750	13,800	.....	58,700
Otto G. Mayer & Co.	42,700	700	2,500	.....	45,900
Sears & Co.	2,000	.....	1,200	.....	3,200
J. M. Ceballos & Co.	400	.....	400	.....	800
To Order	.....	.....	.....	30,900	30,900
Total	375,100	52,200	259,800	85,900	773,000

IMPORTS OF CENTRALS.

BELOW will be found in detail the imports at New York, during January, 1893, of India-rubber from Mexico, Central America, and South America, other than Pará grades:

JAN. 2.—By the *Alvena*=Port Limon: POUNDS.

J. Aparicio & Co	200
W. H. Crossman & Co	220
Total	420

JAN. 3.—By the *Mozart*=Pernambuco:

Reimers & Meyer	1,200

JAN. 9.—By the *Colombia*=Colon:

A. N. Rotholz	250
Eggers & Heinlein	275
J. Agostini (Panama)	784
To Order (Panama)	6,135
G. Amsinck & Co. (Panama)	5,000
[Ex *Quito*=South Pacific Ports.]	
W. R. Grace & Co	8,787
Mecke & Co	7,918
C. Roldan & Van Sickel	14,361
G. Amsinck & Co.	11,935
Munoz & Esprella	1,680
A. M. Capen's Sons	693
L. G. Amsinck	1,000
F. G. Pierra & Co	1,998
Andreas & Co	4,540
F. G. Tomas	305
Hoadley & Co	497
[Ex *City of Sidney*=Central America.]	
Flint & Co	830
Hoadley & Co	1,019
Ellsworth Westervelt	909
H. Marquand & Co	226
A. H. Grife	250
A. James & Co	1,385
Total	70,777

JAN. 9.—By the *Unita*=Cartagena:

To Order	425

JAN. 9.—By the *Alvo*=Colombian Ports:

G. Amsinck & Co. (Savanilla)	150
Pundelford & Co. (Savanilla)	100
W. R. Grace & Co. (Cartagena)	3,825
Total	4,075

JAN. 12.—By the *Adirondack*=Central America:

Eggers & Heinlein (Belize)	700
Jacob Baiz (Porto Cortez)	100
W. R. Grace & Co. (Porto Cortez)	100
Munoz & Esprella (Greytown)	800
A. P. Strout (Greytown)	2,750
Eggers & Heinlein (Livingston)	500
Total	4,950

JAN. 12.—By the *City of Alexandria*=Mexico:

To Order (Vera Cruz)	150
H. Marquand & Co. (Tuxpan)	100
Total	250

JAN. 16.—By the *Cuidad Condal*=Vera Cruz:

P. Harmony's Nephews	150
H. Marquand & Co.	800
Total	950

JAN. 16.—By the *Strabo*=Pernambuco:

Reimers & Meyer	32,000

JAN. 16.—By the *Andes*=Port Limon:

Munoz & Esprella	450

JAN. 16.—By the *Yumurri*=Central Am. Ports:

C. Oertil (Vera Cruz)	150
P. A. Forrest & Co. (Tuxpan)	250
Total	400

JAN. 19.—By the *City of Pará*=Colon:

Eggers & Heinlein	358
G. Amsinck & Co. (Panama)	10,750
Hoadley & Co. (Panama)	2,180
[Ex *Barracouta*=Central America.]	
J. Aparicio	5,548
Munoz & Esprella	377
Pardo, Velasco & Co	1,101
Hoadley & Co	270
Pornares & Cushman	516
A. P. Strout	1,769
Jacob Baiz	1,193
Ellinger Brothers	1,026
[Ex *Casma*=South Pacific Ports.]	
Munoz & Esprella	4,759
W. R. Grace & Co.	4,016
[Ex *Arequipa*=South Pacific Ports.]	
New York Commercial Co.	8,800
J. M. Ceballos & Co.	10,921
[Ex *Cockapoal*=South Pacific Ports.]	
New York Commercial Co	3,300
H. Feltman & Co	4,400
J. M. Ceballos & Co	2,000
W. R. Grace & Co.	206
Total	63,488

JAN. 22.—By the *Athos*=Port Limon, etc:

Ellinger Brothers (Port Limon)	1,500
To Order (Cartagena)	400
Pundelford & Co. (Cartagena)	800
C. Roldan & Van Sickel (Cartagena)	200
Total	2,900

JAN. 22.—By the *Yucatan*=Mexican Ports:

L. Montjo & Co. (Cartagena)	400
Zaraus & Co. (Tuxpan)	200
Total	600

JAN. 29.—By the *Yumurri*= Mexican Ports:

H. Marquand & Co. (Tuxpan)	300
C. Oertel (Vera Cruz)	200
Total	500

JAN. 30.—By the *Newport*=Colon:

[Ex *City of Panama*=Central American Ports.]

W. Loaiza & Co	1,154
H. Marquand & Co.	3,750
J. Aparicio & Co.	1,605
Munoz & Esprella	139
Flint & Co.	1,155
Piza, Nephews & Co.	420

[Ex *Mendoza*=South Pacific Ports.]

J. M. Ceballos & Co.	3,700
H. Feltman & Co	800
New York Commercial Co	2,700
Total	15,423

JAN. 31.—By the *Jason*=Central America:

A. P. Strout (Belize)	12,000
J. W. Wuppermann (Livingston)	2,000
Munoz & Esprella (Greytown)	9,500
Total	23,500

Total imports of Centrals	222,308
Total for December	208,198
Total for November	297,100
Total for October	207,715
Total for September	140,756

BOSTON ARRIVALS.

JAN. 5.—By the *Durham City*=London: POUNDS.

Reimers & Meyer, Africans	50,000

JAN. 5.—By the *Kansas*=Liverpool:

Reimers & Meyer, Africans	33,000
George A. Alden & Co., Fine Pará	16,400
Africans	10,000

JAN. 6.—By the *Rhenania*=Hamburg:

Reimers & Meyer, Africans	35,000

JAN. 9.—By the *Pavonia*=Liverpool:

George A. Alden & Co., Africans	5,700
Reimers & Meyer, Africans	6,000

JAN. 19.—By the *Ottoman*=Liverpool:

Reimers & Meyer, Africans	23,000
George A. Alden & Co, Fine Pará	29,200

JAN. 20.—By the *Nessmore*=London:

Ropes, Emmerton & Co., Madagascar	29,840

JAN. 21.—By the *Suchganic*=London:

Reimers & Meyer, Africans	33,000
East Indian	11,000

JAN. 25.—By the *Philadelphian*=Liverpool:

Boston Woven Hose and Rubber Co., Africans	3,500

JAN. 30.—By the *Borderer*=London:

Reimers & Meyer, Africans	54,000

Total Pará	45,600
Total Africans, etc	264,040
Grand Total	309,640
Total Boston Imports, December	255,120
Total for November	297,100
Total for October	100,650

NEW ORLEANS.

[*December*, 1892.]

	POUNDS.	VALUE.
From Honduras	1,010	$ 312
From Nicaragua	46,797	24,014
From Colombia	706	282
Total	48,513	$24,608

[*January*, 1893.]

	POUNDS.	VALUE.
From Honduras	1,868	$ 538
From Nicaragua	79,904	30,091
Total	81,772	$30,629

A New Rubber-Trading Company.

ARTICLES of incorporation were filed in the office of the Secretary of State of New York, at Albany, on February 1, of which the particulars follow:

The name of the proposed corporation is the Beni Gum Company. The objects for which it is to be formed are the planting, gathering, and trading in rubber and other products of Bolivia, South America, excepting minerals, gems, and precious stones, and the location of its business is to be in the city of New York, in Bolivia, South America, and elsewhere. The amount of its capital stock is to be $500,000, all of which shall be common stock. The number of shares of which the capital stock shall consist is 5000. The location of its principal business office is to be in the city of New York. Its duration is to be fifty years. The number of its directors is to be seven. The corporation may purchase, acquire, hold, and dispose of stocks, bonds, and other evidences of indebtedness of any corporation, domestic or foreign, and issue in exchange therefor its stocks bonds or other obligations.

The names and addresses of the directors for the first year, and the number of shares of stock which each of these agrees to take in the corporation, are as follows:

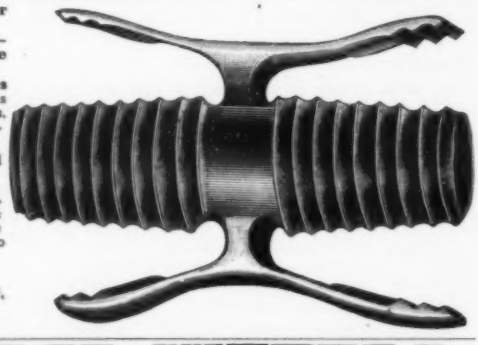
	SHARES.
Joseph P. Earle, No. 148 Pearl street, New York	475
Baron H. Arnous de Riviere, No. 48 Wall street, New York	4,500
George S. Terry, No. 1 East Thirty-ninth street, New York	5
Cecil Campbell Higgins, No. 48 Wall street, New York	5
Henry Earle, No. 148 Pearl street, New York	5
William P. Earle, No. 148 Pearl street, New York	5
Frederick Ferris, No. 148 Pearl street, New York	5

Prices of Rubber Scrap.

PRICES of old rubber stock are thus quoted in New York: Old rubber boots and shoes, 4⅜@4½c.; old Rubber Car-Springs, 3¼@3½c.; Rubber Hose (Fire) $20 per ton. The market is active, the demand being very large. At an auction sale held at Utica, N. Y., on the 6th, of the stock of Enos Boutillier & Co., a lot of about ten tons old rubber and shoes brought 4½c. f. o. b. There were 75 dealers in attendance.

THE INDIA RUBBER WORLD is indebted to Messrs. Reimers & Meyer, of No. 67 Pine street, New York, and No. 150 Franklin street, Boston, for a statistical showing of the exports of India-rubber from Pará and Manáos for 1892. The exports are reported at 40,805,332 pounds, against 30,988,704 pounds in 1887.

THE KEMPSHALL HOSE MENDER.



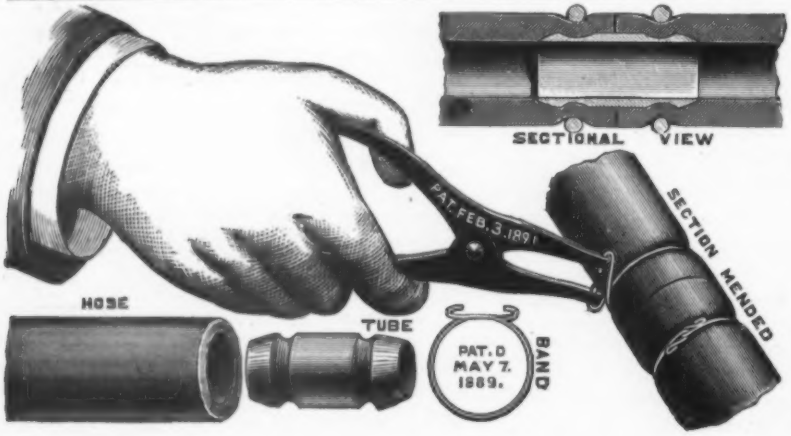
It will never work loose.
Made of refined Malleable Iron.
No straps or wires needed with this as with other menders. One trial will convince you that
The Kempshall Hose Mender
is the one you want.
On receipt of one dollar a sample dozen will be sent to any address.
MANUFACTURED BY
The E. Kempshall Co.
NEW BRITAIN, CT. U. S. A.

A NEW HANDLE FOR RUBBER CUTTERS.

Jaws are made of steel, and handle of rosewood brass lined.
It requires no key, the ferrule being loose, a simple turning of the handle tightens the grip on the blade. Jaws adjustable and always parallel.
SEND FOR ILLUSTRATED PRICE LIST.

THE SEWING MACHINE SUPPLIES CO., Sole Manufacturers, 105 and 111 Summer Street, Boston, Mass., U. S. A.
The "S. M. S. Co." Blades are Unsurpassed for Quality.
BRANCH HOUSES: Chicago, Ill., and London, Eng.

Mention the India Rubber World when you write.



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SO SIMPLE A CHILD CAN USE IT.
Made in three sizes
For ½, ¾, and 1 in. Hose.
Put up in Boxes for Family Use.
Each Box contains 1 pair Pliers, 20 Bands, 6 Tubes.
BOXES SELL READILY FOR 75 CENTS.
Liberal discount to the trade. Send for Circulars and Prices to
C. E. HUDSON & CO., Leominster, Mass.